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ENDOCRINOLOGY AND MODERN MEDICINE.[1]

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UNTIL the middle of last century the correlation of the functional activities of the various organs of the body was conceived as being carried out by the central nervous system. At the present day this conception has been modified by the recognition of an additional chemical control of organic activities achieved by the secretion from certain tissues of physiologically active substances into the blood or lymph. Among the organs which are believed to provide such internal secretions or "incretions," are the testes and ovaries, the thyreoid and parathyreoid, the thymus, the pituitary, the pancreas and the adrenals. For the rigid demonstration that an organ provides an internal secretion the active substance should be shown to be present in the blood or lymph flowing from it, some or all of the symptoms which result from extirpation of the organ should be abolished by the administration of the active substance and finally symptoms characteristic of overactivity of the organ should be caused in healthy animals by treatment with active extracts of the gland. In most of the organs of internal secretion such strict proof of their function is as yet lacking.

In the history of the development of the conception of internal secretion two names stand out, those of Claude Bernard and Charles Edouard Brown-Séquard, but in support of the doctrines which they inculcated, clinical medicine and laboratory investigation have played equally important parts. Berthold (1849) showed that when the testes of young castrated cocks were at once reimplanted the birds grew into normal cocks without any impairment of the sexual impulse, although the nervous connexions of the testes had been severed. Thomas Addison (1855) described the clinical picture associated with bilateral destruction of the adrenals. Gull (1874) described myxœdema, Ord (1877) gave it its name and Kocher and Reverdin (1882) showed its relationship to

[1] Read at a meeting of the Victorian Branch of the British Medical Association on May 27, 1925.

absence of the thyreoid gland. Möbius (1886) recognized the possibility of excessive function of this gland in Graves's disease and Pierre Marie in the same year related acromegaly to pituitary disorder. Brown-Séquard (1889), then aged seventy-two, entertained the scientific world by the relation of his personal experiences of the beneficial effects of the injection of testicular extracts. Von Mering and Minkowski in the same year caused diabetes in animals by extirpation of the pancreas. Gley's work (1890) associated tetany with disease of the parathyreoid. Murray (1891) showed the influence of feeding with thyreoid substance in cretinism and myxœdema. Oliver and Schäfer (1895) discovered a pressor substance in extracts of the adrenal and subsequently of the pituitary gland. Fröhlich (1901) described the syndrome which goes by his name and in the same year Takamine isolated adrenalin. The increasing importance of biochemistry has been demonstrated in recent years by the isolation of thyreoxin by Kendal. The discovery of "Insulin" by Banting and Best (1922) has ushered in a new era in the treatment of diabetes and opened up a vast new field for experiment.

From the standpoint of modern medicine the two most interesting aspects of endocrinology are the question of the inter-relation of the ductless glands and the application to treatment of gland extracts or pharmacologically active substances prepared from them. The doctrine of the inter-relation of the organs of internal secretion associates them with the activity of two antagonistic systems of innervation—the sympathetic and the cranio-sacral or vagal autonomic. Eppinger, Falta and Rudinger, of the Vienna school, put forward the view that the thyreoid and adrenals act upon and are controlled by the sympathetic, while the pancreas is related to the vagal autonomic system. Adrenalin is regarded as the specific hormone of the sympathetic, because its injection causes most of the effects of sympathetic stimulation—dilatation of the pupil, diminished salivation, tachycardia, glycosuria, contraction of the smooth muscle of the arterioles and relaxation of the smooth muscle of the intestine and bronchi. There is no known antagonistic hormone, though Eppinger and Hess went so far as to postulate one, but certain drugs—pilocarpine, muscarine and choline—stimulate the vagus and cause an opposing set of effects—salivation, slowing of the heart beat and contraction of intestinal smooth muscle. If an individual reacts more readily with adrenalin on the one hand or with pilocarpine and its allies on the other, he is classed as sympatheticotonic or vagotonic. The Viennese school has also developed a further theory which concerns the production of glycosuria. The thyreoid, pituitary and adrenals are regarded as the mobilizers of sugar and are antagonized by the pancreas and parathyreoids. In recent years, too, there has grown up the conception of the pluriglandular syndrome, in which primary changes in one gland have led to secondary changes in others, or in which two or more symptom complexes resulting from affections of separate glands of internal secretion occur simultaneously.

The theory of vagotonia and sympatheticotonia, to which Swale Vincent refers as "so dear to credulous physicians," requires only brief discussion. Adrenalin does not stimulate all the sympathetic endings, for it does not cause sweating, though pilocarpine does. The absence of glycosuria following the injection of adrenalin cannot be held to indicate depression of the whole sympathetic system, as there may still be a rise in blood pressure and accelerated heart beat following the administration of the drug. This elective affinity of the hormone for some or other of the sympathetic nerve endings speaks strongly against the theory. Further, the evidence for the direct action of the nervous system on the glands of internal secretion is still very indefinite, though the adrenals are undoubtedly innervated through the splanchnics and Cannon's ingenious experiments point to the cervical sympathetic as the nerve supply of the thyreoid. Finally, clinical study shows that in but few cases is the picture a pure one, but that symptoms suggestive of over-activity of both systems of innervation are often present in one and the same individual.

There are a good many experimental and clinical facts which seem to suggest definite relationships between the glands of internal secretion. Perhaps the most striking instance of interaction is found in the case of the thyreoid and pituitary. After the removal of the thyreoid gland in animals there is pituitary hypertrophy which can be prevented by feeding with thyreoid gland substance. There is, however, no increase in the iodine content of these enlarged glands so that the hypertrophy is not likely to be vicarious and Swale Vincent draws attention to the fact that the extent to which the parathyreoids are involved, is not certain. On the other hand, hypopituitarism is said to cause hypertrophy of the thyreoid. The thyreoid may also undergo enlargement after bilateral extirpation of the adrenals and in hyperthyreoidism it seems possible that there is an increase in the amount of adrenalin in the blood or an increased susceptibility to its action. Hypertrophy of the thymus may occur in cases of exophthalmic goître and it is also found in the offspring of guinea pigs fed with thyreoid during pregnancy.

The reproductive glands have many interesting associations. The thyreoid is often enlarged in pregnancy, during menstruation and at puberty and in young animals thyreoidectomy may cause delay in the development of the reproductive organs. In myxœdema and exophthalmic goître there may be changes in the reproductive system. The relation between the adrenals and the gonads is likewise of interest and well established clinically. Tumours of the adrenal cortex may be associated with sexual precocity and the adrenal cortex seems to stimulate the growth of the reproductive organs, particularly in male animals. The adrenals are also enlarged in pregnancy. The relation between the pituitary and gonads is well attested. In

hypopituitarism of the Fröhlich type there is delayed development of the reproductive organs and it has been suggested that the thickening of the lips and enlargement of the hands which sometimes occur in pregnancy, are related to a coincident hypertrophy of the pituitary. Enlargement of this gland is also met with in castrated animals and in senility similar microscopical changes are said to occur.

The inter-relationships of the pituitary, adrenals and pancreas are somewhat complicated and will be described later among the effects of the endocrine organs on carbohydrate metabolism.

The evidence for direct interaction of the glands in any of these various relationships appears to be very slight and there is no proved instance of vicarious hypertrophy. Many of these relationships seem to form part of or be dependent upon the general metabolic changes which accompany defects of any one of the endocrine organs. With this conception in mind let us summarize briefly some of the effects which these glands exert upon metabolism. The influence of the thyreoid gland upon oxygen consumption and body temperature cannot be gainsaid. In myxœdema the temperature tends to be lowered and in Graves's disease to be raised above normal. Extirpation of the gland causes a pronounced fall in oxygen consumption and in the output of carbon dioxide and in myxœdema, where such a fall in the basal metabolic rate also occurs, the rate may be brought back to normal by the administration of thyroxin. In hibernating animals which have a lowered rate of metabolism and a low body temperature, the thyreoid is atrophic during the winter sleep. When they awaken, their body temperature rises and a similar rapid rise may be caused during hibernation by the injection of thyreoid extract or adrenalin. After extirpation of the adrenal glands there is a progressive fall in body temperature and the injection of adrenalin in the normal animal causes a rise in temperature which Cramer has associated with increased combustion of carbohydrate. It is uncertain, however, whether this may not be accounted for by the constriction of the skin vessels with consequent diminution of heat loss. The influence of the genital glands is illustrated by the difference of temperature in the sexes and by the fall in the basal metabolic rate which occurs after castration. The pituitary probably exerts a more marked influence on metabolism than either the adrenals or the testes. The gland is atrophic during hibernation and extirpation of the organ causes a definite fall in basal metabolism. It should be noted that the fall in body temperature which occurs after bilateral extirpation of the adrenals, is unaccompanied by any striking change in oxygen consumption. The results of such fatal operations as extirpation of the adrenals or pituitary should, however, be interpreted with caution.

Nitrogen metabolism is more affected by the thyreoids than by any other of the endocrine glands, though even here the changes may be masked by a diet rich in carbohydrate and fat which exert a sparing effect on the use of protein. Myxœdema is attended by a low nitrogen excretion and the administration of thyreoid extract causes it to rise. After the removal of the thyreoid without interference with the parathyreoids there is a fall in nitrogen metabolism, but, if the parathyreoids are removed as well, the operation may be attended by a rise instead of a fall. The adrenals have but little influence on the nitrogen exchange, but adrenalin and pituitrin are both said to cause an increase in the excretion of creatinin, possibly by virtue of their action on smooth muscle. Castration does not invariably affect nitrogen metabolism.

The effect of the glands of internal secretion on fat metabolism is seen in the increased storage of fat in cases of disease affecting them. After castration this fat deposition has a peculiar distribution. In addition to a general subcutaneous deposition it is most marked on the breasts, buttocks and pubes. There is also fatty infiltration in the skeletal muscles. Fat accumulation in pituitary disease may be directly related to the lesion in the gland or may depend upon secondary changes in the genital glands. Fat storage also occurs in cases of thyreoid insufficiency or after the removal of the thyreoid glands. The pancreas plays a most important part in fat metabolism. Experimental pancreatic diabetes and the severer cases in man are attended by lipæmia which is abolished by the administration of "Insulin." It seems that for the proper combustion of fat carbohydrate must be utilized simultaneously. "Insulin" also rapidly removes the products of incomplete fat oxidation which occurs when carbohydrate is not being properly used in the body, an action which is possibly indirect and due to the increased combustion of carbohydrate.

The influence of the pancreas, thyreoid, pituitary and adrenals upon carbohydrate metabolism requires to be discussed in greater detail. Claude Bernard (1850) showed that puncture in the floor of the fourth ventricle causes glycosuria. This is associated with hyperglycæmia and diminution of liver glycogen. If the splanchnic nerves are divided before the puncture, these effects do not occur and if the adrenals are removed, the hyperglycæmia is much less in degree and there is no glycosuria. *Piqûre* diabetes appears to be due to stimulation of the sympathetic nerve endings in the liver with resultant mobilization of sugar from glycogen. At the same time there is an increase in the output of adrenalin, though it is doubtful if this is enough to account directly for much of the sugar mobilization. It may aid by increasing the sensitiveness of the sympathetic nerve endings in the liver and according to some authorities alters the permeability of the kidney to sugar, thus accounting for the glycosuria.

The injection of adrenalin subcutaneously or intravenously also causes an increase in the blood sugar with attendant glycosuria. The simultaneous injection of pituitary extract is said to abolish the glycosuria without affecting the hyperglycæmia. After removal of the thyreoid adrenalin glycosuria

is less marked, while feeding with thyreoid extract increases it. Adrenalin probably acts by increasing the mobilization of sugar from the liver, though it should be noted that to produce these effects it requires to be administered in doses much larger than any output of adrenalin which can ever be caused from the adrenals. Pituitary extract probably antagonizes adrenalin in its action on the kidneys, but the way in which thyreoid extract acts, is uncertain.

The hyperglycæmia and glycosuria which result from extirpation of the pancreas, can be prevented by the administration of "Insulin." Removal of the posterior lobe of the pituitary before the pancreas is removed is said to prevent glycosuria from occurring and ligation of the suprarenal veins at the same time as removal of the pancreas has a similar effect. When "Insulin" is injected into a normal animal, there is a profound fall in the blood sugar and a simultaneous diminution in the liver glycogen. It is not yet certain what becomes of the mobilized sugar, as, except in the case of the heart muscle, there seems to be no clear evidence of increased combustion. The extreme hypoglycæmia which can be produced by "Insulin," is attended by vasomotor symptoms, sweating, muscular weakness and in extreme cases by convulsions and coma. Adrenalin and pituitrin are both antagonistic to "Insulin." Burn showed that the rise of blood sugar caused by subcutaneous injection of a dose of pituitrin was not sufficient to account for the whole effect when it is administered in "Insulin" hypoglycæmia. Its action, therefore, is in part directly antagonistic, whereas that of adrenalin is to some extent due to increased mobilization of sugar from glycogen in the liver and muscles.

The endocrine organs also influence the metabolism of calcium which plays such an important part in the animal economy. Not only is it of importance in regard to the growth of the bones and teeth, but deficiency of calcium in the circulating blood is associated with symptoms of increased irritability of the nervous system. Such a decrease in the blood calcium is found after parathyreoidectomy in animals and injection of calcium salts checks the convulsions which occur under these conditions. The bones of animals which have been deprived of their parathyreoids, are brittle and after fracture callus formation is slow. There is also interference with the growth of the teeth with patchy failure in the calcification of the dentine and defective growth of the enamel. Grafting of the gland cures these conditions, though the administration of parathyreoid extract or of calcium fails.[1] Removal of the thymus in young animals is also said to cause interference with the growth of bone. There is a loss of calcium from the body which cannot be made up by the administration of calcium salts or thymic extracts. The relation of osteomalacia to pregnancy and its cure in some cases by removal of the ovaries suggests that the ovaries also may play a part in the metabolism of calcium.

The other aspect of endocrinology which is important in relation to modern medicine, is its application to treatment. There are large numbers of gland products on the market which are now widely used, and it may not be without value to suggest the broad general principles which should govern a critical investigation of the value of any one of them. In the first place the diagnosis of cases under treatment should be above suspicion and the evidence concerning it should be presented in such detail as to carry conviction. The records of treatment and its results should also provide evidence other than mere impressions of improvement or the reverse. This type of impression is only of value to the physician himself and is subject to too large an element of autosuggestion to be of value. In many cases the patient's weight, blood pressure, volume of urine or other quantity capable of accurate measurement can be recorded. The possibilities of photography should not be overlooked. In the second place there is the selection of the preparation to be tested and its route of administration. There are a large number of substances which have never been shown in animal experiments or in man to have any trace of activity, for example, mammary gland, prostate and pineal gland extracts. It is hardly worth while wasting time on these and their like. The extract to be tested should be tried by itself and not in combination with others or with drugs. The practice of administering a shot-gun prescription containing several organ extracts is unsound even in a pluriglandular syndrome, unless there is unassailable evidence of the activity of each of the constituents and knowledge concerning their possible antagonisms. Furthermore, the route of administration should be carefully chosen. Where the gland extract is destroyed by the digestive juices it is useless to give it by the mouth. Pituitrin, for example, given in this way has but little action in *diabetes insipidus* and "Insulin" given by the mouth to diabetic patients is of no value. The subcutaneous route is generally speaking the most economical and effective, though for this aseptic preparations are necessary and it involves extra trouble and care.

Finally the results of administration should be carefully controlled. In chronic conditions it may be possible to achieve this in a single case, provided that the disease is not one which is subject to natural remissions, and that the remainder of the treatment remains constant throughout and by itself exerts a curative effect definitely less than that produced when treatment with the extract is superadded. Generally, however, a series of cases is more useful and in this event the great difficulty is the rarity of suitable ones. There must be no selection of those which are more or less severe, but the cases should be taken in order of occurrence and treated with and without the extract alternately, the basic treatment being uniform throughout.

[1] Collip has recently prepared active parathyreoid extracts which abolish tetany and cause hypercalcæmia in normal animals.

A METHOD FOR THE DETERMINATION OF DEATH BY DROWNING.

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AND

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A METHOD for the determination of death by drowning was described by Alexander O. Gettler in an article in *The Journal of the American Medical Association,* November 19, 1921. In the article Gettler pointed out that neither the surface signs nor the interior signs usually described as found in a case of death from drowning are specific. For this reason investigators had turned to differences in the chemistry of the blood of the two sides of the heart, due to the fact that water entering the lungs will quickly reach the left side of the heart and dilute the blood therein, while the blood of the right side of the heart remains relatively undiluted.

He goes on to state that as the inorganic constituents are not affected by *post mortem* changes, they are the only constituents an estimate of which can be expected to yield reliable results, and he decided to investigate the amount of chloride content. This he did in forty-one cases where the causes of death were various, nineteen of them from drowning. He expressed his analyses in milligrammes of sodium chloride per hundred cubic centimetres of blood from each side of the heart in each case and found that in cases of drowning in salt water there was a considerable increase of chloride present in the blood of the left side, while in drowning in fresh water the opposite result was obtained.

In deaths from other causes he found that the percentage was sometimes higher in the left, sometimes in the right, but the difference was never greater than five milligrammes. In all the cases in which there was no doubt that death was due to drowning, the difference between the chloride content in the right and left heart chambers was always much more than five milligrammes (ranging from nineteen to two hundred and ninety-four milligrammes) depending on the amount of water going into the lungs and on the time interval between the entrance of water into the lungs and death.

Gettler concluded, therefore, that a difference in the chloride content of the two heart chambers exceeding twenty-five milligrammes indicates that the individual was drowned. Persons who die of shock during the first stage of drowning, may not show this difference, but such cases are rare.

Subsequently, a Japanese investigator, Kumas Yamakami, in an article in the *Tohoku Journal of Experimental Medicine,* April 30, 1923, described a fairly large number of experiments on animals and stated that these in all points confirmed the results obtained by Gettler.

Cases of drowning in salt water are frequent in Sydney and we recognize that although the general picture given by the external and internal appearances in an examination of a fresh body after death from drowning is as a rule fairly characteristic, it is not absolutely and certainly diagnostic. When putrefactive changes take place the picture may be blurred or lost.

If, therefore, the test as described by Gettler is reliable, it would be of great value. For this reason a series of analyses was undertaken, the analyst in each case being unaware of the cause of death.

Unfortunately it was found that in cases in which decomposition had advanced to any serious extent, it was impossible to secure the blood necessary, the blood being displaced by gases of decomposition. It was just this class of case in which we had hoped after reading the articles mentioned to derive the greatest help.

Up to the present we have only completed nine examinations. Few people are drowned in fresh water in Sydney and no case was encountered during the time these analyses were being carried out.

Previous methods proposed by investigators dealing with the concentration differences in the blood,

TABLE SHOWING AMOUNT OF SODIUM CHLORIDE IN BLOOD FROM RIGHT AND LEFT VENTRICLE RESPECTIVELY.

Date of Analysis.	Number.	Sodium Chloride in Milligrammes per Hundred Cubic Centimetres. Right Side of Heart.	Sodium Chloride in Milligrammes per Hundred Cubic Centimetres. Left Side of Heart.	Left Ventricle. Difference.	Cause of Death.
April 4, 1924	1	475	587	+ 112	Drowning in sea water.
May 13, 1924	2	370	362	— 8	Mitral and aortic stenosis and thrombosis of middle cerebral artery.
May 20, 1924	4	472	472	0	Drowning in sea water.
June 18, 1924	5	587	650	+ 73	Drowning in sea water.
August 7, 1924	6	512	437	— 75	Suffocation by tooth-plate.
October 27, 1924	7	656	681	+ 25	Drowning in sea water.
January 6, 1925	9	515	746	+ 231	Drowning in sea water.
April 30, 1925	10	400	369	— 31	Strychnine poisoning.
May 6, 1925	11	415	473	+ 58	Drowning in sea water.

comprised determinations of the total solids, of the ash, of the iron content, the hæmoglobin content, cell count, specific gravity, freezing point and electrical conduction. It has been shown that all these methods fail in many cases and have been rejected. Gettler holds and his conclusions have the support of many experiments, that the determination of the equivalent amount of sodium chloride is the reliable means by which a valuable diagnosis may be made, not only for the ease with which this may be determined, but for the fact that there are practically only two kinds of water in nature and a *plus* or *minus* sign would indicate one or the other.

An all important feature is the accuracy by which the amounts of the sodium chloride may be determined in the two specimens of blood. A factor which is a stumbling block to an ordinary gravimetric method, is the volatility of the salt on ashing unless special care be taken. But if instead of strongly heating the dried blood it is little more than charred, then leached with water and afterwards ashed at a low temperature, all the soluble chloride present may be got into solution and accurately determined as silver chloride in the ordinary manner.

It was to avoid the loss due to volatility, that Austin and Van Slyke used the process that is now recommended by Gettler and Yamakami. This, described in detail in Gettler's paper, consists of treating three cubic centimetres or three grammes of the blood with a definite volume of a solution of picric acid and to a portion of the filtrate thus freed from proteid matter adding a known excess of acidified, standard nitrate of silver solution, finally titrating the excess of silver with a suitably prepared solution of potassium iodide, starch being the indicator.

An alternative method is given by Gettler and in this the quantities used are modified and sodium tunsgate solution replaces picric acid as the coagulent. This method, though capable of giving good results did not in every case behave according to expectations and it was rejected in favour of the first named, supplemented by an occasional checking of results by the old gravimetric method.

It will be seen that of the six cases of drowning in sea water, five show a definite increase of chloride present in the blood of the left side ranging from twenty-five to two hundred and thirty-one milligrammes. In the other, number four in the table, it is present in equal amounts on the two sides. It is difficult to account for this result. The only suggestion we can make is that a patent *foramen ovale* was missed at the autopsy. In cases numbers six and ten the results are quite opposed to those obtained by Gettler in deaths from causes other than drowning, in which, he stated, the difference was never greater than five milligrammes. If the analyses had been submitted to Gettler he would presumably have diagnosed the cause of death in each case as drowning in fresh water. These two cases, as well as number two, were selected because the general appearances seen at the autopsies somewhat resembled those seen in drowning. Although these analyses are few, they show that Gettler's conclusions cannot be accepted in their entirety. Further investigations are necessary.

IDEALS OF OBSTETRIC WORK.[1]

By J. W. Dunbar Hooper, M.D. (Durham), M.D. (*ad eundem gradum*, Melbourne), *Melbourne.*

The Melbourne Permanent Committee for Post-Graduate Work, having honoured me by suggesting that I should speak a few words on the "Ideals of Obstetric Practice," possibly knew that I have had an experience of some five thousand obstetric cases behind me and I think that the very first ideal which has been in my mind these last four or five years, has been attained this evening by the very fact of your presence here to encourage the study of obstetrics in this State. Surely such a meeting as this would have been impossible and unheard of three years ago and we would like here to tender our very hearty thanks to Dr. R. H. Morrison, the Lecturer in Obstetrics and representative of the Women's Hospital on our Permanent Post-Graduate Committee, for the enthusiastic manner in which he has taken up the duties of arranging this course. I desire to thank the members of the honorary obstetrical staff of the Women's Hospital cordially for the zealous way in which they have supported all our efforts.

Of all branches of our profession it must be conceded that obstetrics has ever been treated by our profession as the Cinderella of the group. She has been a hard-worked, badly paid, ill-considered drudge. But within recent years men and women have been so thoroughly grounded in modern medicine and aseptic surgery and the many modern developments in physiology and still more in biochemistry and bacteriology that now practitioners can take up obstetrics as their life's work at the time when the work itself has been greatly improved and the general tone has been uplifted. There stand out among the pioneers to each of whom obstetrics owes a very heavy debt, such names as Pasteur, Lister, Semmelweiss, Sir J. Y. Simpson, Oliver Wendell Holmes, Sir George Newman (the Chief Medical Officer of the British Ministry of Health), Professor Tarnier, of Paris, and, at last gaining his due credit, the late Dr. J. W. Ballantyne, of Edinburgh, who was the originator of all British antenatal work. Dr. Arthur Wilson will show you the wonderful results which have attended the antenatal treatment of syphilis in the mother, thus practically insuring the birth of a non-infected child and antenatal work has practically wiped out some types of eclampsia. Quite recently Dr. Bar-

[1] Being the opening address at the Lectures on Obstetrics delivered under the auspices of the Melbourne Permanent Committee for Post-Graduate Work on June 2, 1925.

rington, of Sydney, and Professor Windeyer, of Sydney, have also spoken out in defence of obstetrics and have raised the status of their speciality to a very high position in New South Wales.

We in Melbourne, deriving knowledge and energy from the spirit of research and practice of these pioneers, have gradually reached the stage in which it is recognized that obstetrics comes under the head of preventive medicine and therefore is most useful to the community and humanity. Its success demands sound knowledge of medicine and aseptic surgery and by our experience and theirs we have been enabled to alleviate the pains of childbirth and in a great measure to prevent sepsis.

Believe me that all the qualities which make a good surgeon and a careful physician, are required to insure success in obstetrics. We require good health and even temper, for much of our work is done at night when our bodily resistance is certainly lowered. The irregular hours of our engagements prevent us from joining in many sports or from taking interest in social games and we can rarely get away for a long vacation, but with all these disabilities there is something attractive in the work. The obstetrician shows sympathy with womanhood, practical guidance of the mother before her child is born, care and cleanliness during her time of stress, alleviation of her pain, followed by watchfulness and guidance for the infant. When these are working concurrently we shall gradually attain the ideals, namely, safety and happiness to the woman, safety and health to the child and strength to the whole community.

We obstetricians individually help the mother and the child to our utmost; collectively we are all doing national work and now at this stage I ask attention to these figures which I have put on the blackboard to show you the goal at which we are aiming.

The Government Statist informs me that the puerperal mortality in Victoria during the year 1924 was 48.70 per 10,000 children born alive and that the infantile mortality in Victoria in the same year was 6.13 per hundred births.

Can we reduce the mortality and morbidity of 1924 as shown by these official figures? I say we can and we shall; by knowledge, by care and again care and by "service, not self."

I trust the day is not very far off when there shall be an M.D. Australia for medicine, a mastership in surgery for the whole of Australia and a mastership in obstetrics for the whole of Australia. Let the States continue to teach and register practitioners, but let the different universities combine and say that all our highest degrees shall bear the imprint Australia and be governed by a conjoint board or college of examiners chosen by experts from each State.

Two ideals remain to be achieved.

Firstly, the Queen Victoria Hospital has a difficult problem to face. Assisted by generous help from the public in its foundation and cordially encouraged by male practitioners, it must find some means whereby male and female medical students shall benefit by the clinical material at its disposal. There are twenty obstetric beds already; forty more are needed to be added to antenatal clinics.

Secondly, and the day is fast approaching, thanks to the enthusiasm of some of the members of the obstetric staff of the Women's Hospital, when that institution will make full use of the enormous clinical material at its disposal which is said to be the largest within the British Empire. Very soon that institution must be in charge of a master in obstetrics who will be the superintendent and have an enthusiastic, energetic professional staff to work with him, so that the annual reports of the Women's Hospital in the near future will show a great diminution in maternal mortality and morbidity and be of such value to the medical profession in Australia as to equal the force and influence of the Rotunda Hospital reports from Dublin.

Finally, we have the fact that the University of Melbourne has received from the Edward Wilson Trust (*Argus*) Fund the sum of £10,000 for obstetrical research. The Medical Faculty and the Victorian Branch of the British Medical Association have selected members of the medical profession to advise them on the matter. The committee appointed consists of Professor R. J. A. Berry, Professor Peter MacCallum, Dr. R. H. Morrison, Dr. C. H. Kellaway, Sir George Syme, Dr. H. Cairns Lloyd, Dr. R. H. Fetherston and Dr. S. S. Argyle, with myself as Honorary Secretary and convenor. The committee is charged with the duty of selecting a whole-time director for a period of two years. We earnestly desire the cordial and whole-hearted cooperation of the whole profession.

DIATHERMY: SOME NOTES ON ITS USE IN MEDICAL AND SURGICAL PRACTICE.

By J. F. Nelly,
Honorary Director, Electrotherapeutic Department, Saint Vincent's Hospital, Melbourne.

Having been engaged for several years in the use of electro-therapy in its various modes and as but little on the subject appears in our Australian medical press, I feel impelled to give some of my experiences, especially in the use of diathermy.

Diathermy simply means that when a current of electricity of great intensity and of almost inconceivable frequency of alternation (two millions per second) is passed through the whole or part of the body, the only sensation experienced is that of gradually increasing warmth due to the production between the electrodes of heat beginning in the centre of that area and gradually extending toward the periphery. As a result of this heating of the tissues and blood we get the following effects:

1. A lessening of the irritability of the sensory nerves resulting in loss of pain;
2. Relief of spasm and tension through its action on the motor nerves;

3. The hyperæmia in lymph and blood vessels and the accelerated flow of warmed blood results in (i.) relief of pain, (ii.) inhibition of bacterial growth, (iii.) absorption of inflammatory deposits and (iv.) stimulation of nutrition.

Such in short is roughly its mode of action.

I have used diathermy almost since its first introduction both in hospital and private practice and I shall now proceed to give some of my experiences and results in actual practice.

The Nervous System.

In brachial neuritis, sciatica of rheumatic and neuralgic origin, intercostal neuritis and in fact in practically all pain of purely nerve origin it is a most valuable method of giving quick and lasting relief. I have seen some of its best results when the usual internal and external treatment has been given for a long time without effect.

Circulatory Disorders.

In hæmorrhoids, especially when ulcerated and bleeding, the relief after a few treatments is at times astonishing and a cure is soon brought about by the coagulation of the blood in the veins. I cannot speak too highly of this mode of treatment, especially in nervous people and those who strongly object to operative procedure of any kind. It is without any shock or pain and the patient need not interrupt his daily work.

In Gynæcology.

There are several conditions in which this mode of treatment is of great value. These include dysmenorrhœa from spasm and congestion, ovaritis and ovarian neuralgias, adhesions, leucorrhœa, especially of gonococcic origin and so on. The use of diathermy is always contraindicated where pus is present, unless there is free drainage.

Digestive Tract.

Where a tonic effect, increase of peristalsis and relief of constipation with improved metabolism are required, the current is very often of greatest value. But it is in cases of pain from spasm or adhesions after operation that it gives the most brilliant results.

In Joint Affections.

In sprains, dislocations and synovitis the result of treatment is sometimes little short of marvellous. It is very gratifying to see a joint filled with fluid return practically to normal so far as swelling, pain and movement are concerned in half an hour's treatment. The improvement is permanent, only in the rarest cases is there a return of the trouble. This applies in both acute and chronic cases. In chronic articular gout, chronic rheumatism and especially in gonorrhœal arthritis (in which it is a specific) the diathermic current gives very great and permanent relief. The result in *arthritis deformans* is, however, disappointing.

In Muscular Troubles.

I have found it invaluable in myalgias, wry neck, lumbago, strains, especially in chronic intractable conditions.

The above are a few cases picked at random from my own personal experience. I have not made any mention of the other high frequency modes, such as ionization, sinusoidal current, high frequency *effleuve* and so forth, reserving these for another occasion.

SOME CONSIDERATIONS ON DEATH FROM ELECTRIC SHOCK.

By B. J. M. Harrison, M.B., Ch.M. (Sydney),
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The increased frequency with which electricity is being applied in the industrial world as well as the manifold domestic uses to which it is put, and the increase in deaths from electric shock in spite of the safeguards enforced by law and by experience, suggest a consideration of the present state of our knowledge regarding the causes and mode of death and the possibility of recovery in these cases.

The facts that the medical specialist is gradually ousting the quasi scientific layman, that radiography and radiotherapy are becoming more and more necessary to scientific medicine and that itinerant electric machine salesmen are constantly attempting to sell electrical apparatus to practitioners with little or no idea of the enormous danger of the force they are trying to bend to their aid, give food for serious thought, especially when one remembers that as recently as 1923 a French radiologist of many years' standing, well acquainted with all the hazards of his occupation, met his death from electric shock from his own apparatus.

Since I commenced to write this article a girl was killed at Goulburn from grasping a wire which had become "live" through short circuiting from the electric light system. The maximum voltage available was two hundred and fifty and according to the newspaper report the electrical engineer stated that he regarded this as perfectly safe. The Government Medical Officer further stated that this was a unique case as he had been unable to find any record of death from voltage less than five hundred and eighty.

It may be pointed out here that between 1914 and 1920 in England there were seventy-nine fatal cases of electrical shock from voltages up to five hundred and Mr. Scott Ram, His Majesty's Electrical Inspector, Factory Department of the Home Office, England, pointed out in 1922[1] that during the decade 1912 to 1921 there were one hundred and fifty deaths from low pressure currents under two hundred and fifty volts. There were twenty-nine fatalities on medium pressure of from two hundred and fifty to six hundred and fifty volts and seventeen from six hundred and fifty to three thousand and thirty-one over three thousand.

Post Mortem Evidence.

It is always possible at *post mortem* examination to determine a site of entry and of exit. Usually hæmorrhages are found in muscles; sometimes also

in and under the skin; sometimes a muscle is ruptured from the violence of the contraction following on the electrical stimulation. No lesions of bone or periosteum are found and there is no evidence that the current has passed through the deeper structures. Sometimes œdema of the brain and cord are found, but only in those cases of retarded death mentioned by Jellinek.

Under special circumstances other lesions may be found, for example, when death follows arcing through an air gap to a grounded patient. The enormous heat (2,000° to 3,000° C.) generated by such an arc will burn a hole through soft tissue and even volatilize bone.[2] This is of course only a variation of the changes due to burning effects and it may be said in general that, given an electric shock sufficient to kill a patient, the less accurate the contact the greater the local burning effect. This local effect differs at points of entry and exit. The point of entry shows a dry charring, while the wound of exit bleeds (often freely) due to the alkalinity induced there by the current.

From the *post mortem* findings it is possible for death to be due to: (i.) Shock, the current passing almost entirely through and along the skin from entry to exit causing excessive stimulation of the sensory nerves; (ii.) irritation and paralysis of the nervous system, the current in this case passing through the head; (iii.) ventricular fibrillation, the current passing through the heart; (iv.) respiratory paralysis, the current either passing through the respiratory centre or through the neck and spine affecting the phrenic and thoracic nerves.

Death may be: (i.) Instantaneous when associated with high voltage and high ampèrage and when contact is good; (ii.) slow, the patient in these cases possibly being able to call for help and dying only after removal from the contact; (iii.) interrupted; (iv.) retarded and due to failure of the respiratory centre to take up rhythm.

Experimental Evidence.

Some information is obtained from experimental work. Faradism of the mammalian ventricle causes fibrillation.[3] A single shock will not cause it unless thrown in exactly at the end of the refractory period.

A constant current will cause fibrillation, but with much less constancy and facility. From fibrillation in man one cannot expect recovery, but since some animals do recover from it and respiration does not cease for one and a half to two minutes after its onset, it is possible for recovery to take place even in man.

Massage of the fibrillating ventricle in the cat is a certain means of restoring cardiac rhythm and may also operate in man; but as death ensues after ten minutes' deprivation of respiration and circulation, the massage must be carried out immediately.[4]

Prevost and Batelli showed that single electric shocks may restore the normal rhythm to a fibrillating ventricle, but here too the time factor is so short as to preclude possibility of help in this direction.

It has been stated that recovery occurs after electrical shock when the patient receives a second physical shock, such as a fall from a height or as is done in some American factories the soles of the feet are beaten violently with a stick. Leonard Hill investigated this with cats, dropping them from a height after administering a shock of fatal degree, but was unable to find any evidence in favour of the theory.[5] His experiments are not, however, conclusive.

Practical Details.

In New South Wales voltages may be found of varying degrees from forty up to thirty-three thousand in the industrial sphere and in the medical world may reach up to two hundred and fifty thousand where deep therapy is practised.

It is manifestly impossible to consider the details for each voltage one may come in contact with, so some generalizations will be of value.

Current Factors.

The normal resistance of the body varies from three thousand to five thousand ohms and resides almost entirely in the cuticle. Alternating currents are more dangerous than direct and currents of lower cycles than currents of high. Lower voltages in general are more dangerous than high. The electrical effect may be on the muscles, especially of the heart causing fibrillation or on the nerve cells causing respiratory paralysis or on the nerves themselves causing reflex effects or may even cause molecular disintegration of structures.

Currents of sufficient ampèrage with voltage in hundreds if passing through the heart kill by fibrillation, if with voltages in thousands they kill by respiratory paralysis.[6]

Modes of Connexion in Circuit.

If the patient touches only one wire and is not "grounded" no shock results.

If "grounded" or in case of high voltages separated from a "ground" by only a short distance a shock is sustained of great relative severity, the absolute degree depending on the factors mentioned below (time, voltage, ampèrage, efficiency of contact *et cetera*). The worst shock of all is sustained when the patient comes into contact with two wires at once forming a direct "short." Experiment tends to show that if such a patient is also "grounded" the shock is relatively less severe.

Duration of Contact.

Death from asphyxiation depends in most cases on the duration of the contact. In the legalized electrocution of criminals death occurs from asphyxia.[7] The criminal is bound by broad straps to the body, arms and legs of the "chair." One pad, well moistened and accurately fitting, is placed over his head and another on his calf. At the end of expiration the switch is closed and an alternating current of one thousand eight hundred volts is passed for five seconds. The voltage is then dropped to two hundred and fifty for thirty seconds, raised again for three seconds, lowered again for one minute and finally raised again for a few seconds.

There is practically no burning in these cases because of the excellent contact secured. The mind is blotted out immediately.

Ventricular fibrillation may occur instantaneously as a result of sufficiently high voltage and ampèrage. In these cases respiration may occur for a few minutes until it ceases from deoxygenation of the stagnant blood in the respiratory centre.

Burns depend on time as well as the other factors.

Nature of Contact.

The cuticle offers much more resistance when dry than when wet. Heavy pressure from grasping or standing on live wire allows more current pass than when the contact is less secure.

Points of Contact on the Patient.

Currents passing through the arms and upper cerebro-spinal area (in which cases the heart often escapes the circuit) cause death by respiratory paralysis. In some cases artificial respiration is followed by recovery.

Currents passing through the thorax or from arms or head to legs cause ventricular fibrillation and almost certainly death.

Currents passing in one leg and out of the other (the heart and brain escaping the circuit) cause muscular shocks, but often without unconsciousness or further injury.

Shock seems to depend more on ampèrage than on voltage. This may be more apparent than real because in cases of low voltage a person may have time to take a firm grasp of a "live" wire before getting the sensation of electrical contact; then the muscular contraction that ensues, prevents him from loosening his grasp, whereas when the voltage is high the sensation is experienced some time before the actual contact is made or else with the slightest touch and the muscular contraction withdraws the patient from the dangerous spot.

Suggestions.

The only points of real value one can offer are:

1. Safety first. Loose wires must be prohibited and "flex." used as little as possible.
2. Clothing and floors must be dry.
3. To force a patient from contact it is wisest to kick the contact away from the patient if possible, taking care to be supported on one leg only (do not place hands on wall, floor or wires or other "ground").
4. In cases of shocked patients artificial respiration may be continued for hours if the heart is beating and the patient blue. If a patient is pale (as in *asphyxia pallida neonatorum*) artificial respiration alone is useless, but used in conjunction with either physical shock or massage of the heart through an abdominal incision or through the thoracic wall or rhythmic electrical stimulation of the præcordium, it may be of some help.

In view of the incompleteness of our knowledge regarding electrical burns and death from electric shock I have suggested to the City Council and the Walter and Eliza Hall Trust that they should set aside a sum of money for the thorough investigation of all electrical accidents occurring among the members of the City Council staff over a period of two years.

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THE TOXICOLOGY OF EUCALYPTUS OIL.

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Recently the cables incorrectly announced the first recorded death in Great Britain from poisoning by eucalyptus oil. The quantity taken was apparently ninety mils (three ounces) and a feature of the case was yellow staining of the throat, resembling that produced by mustard gas. In *The British Medical Journal* of March 10, 1906 (page 558), Dr. Edgar Myott recorded a fatal case at the Derbyshire Royal Infirmary. An adult male died after taking twenty-four mils (six drachms). In this case, however, the patient was suffering from acute bronchitis and pulmonary congestion and was very alcoholic; so that it is impossible to say with certainty how much the eucalyptus oil contributed to the fatal issue. A full *post mortem* account is furnished. A writer in a Sydney journal states that in the epidemic of "Russian influenza" of about thirty-five years ago there were three deaths from eucalyptus oil poisoning within a short period in Great Britain. The Coroner's jury recommended that this "new and deadly drug" should be added to the list of poisons. Potter's "Materia Medica, Pharmacy and Therapeutics" (second edition, 1890) contains the following: "Toxic doses are fatal by paralysis of respiration, through direct action on the spinal cord" (*sic*).

Large doses taken internally produce burning sensations in the throat and stomach, loss of appetite, indigestion with severe gastric pains, hiccough, eructations, nausea and vomiting of yellowish, watery mucus which smells of the oil. The state of the bowels is inconstant. There may be diarrhœa or tympanites, with intense intestinal or abdominal pain or a sensation of girdle-like con-

striction round the abdomen. The fæces smell of the oil.

As regards the circulatory system there may be preliminary vascular excitement with the pulse increased in frequency and force. Subsequently there may be faintness or definite collapse. The heart's action becomes weakened or comes to a stand-still from paralysis of the medullary centres. The area of cardiac dulness has been found increased. The pulse becomes weakened, small, thready or imperceptible. Or the rate may be greatly increased up to 124 or 148. The blood pressure falls profoundly to a very low level. The face may be pallid at first, but becomes cyanosed, congested and purple with dilated venules. It has been considered that phellandrene in eucalyptus oils is powerfully depressant to the heart and the British Pharmacopœia tests expressly exclude oils containing much of this principle.

Either phellandrene (which is a terpene) also or an aldehyde constituent of the oils is very irritant to the bronchial mucosa, especially if inhaled. Both butyric and valerianic aldehydes are considered obnoxious constituents. Overdose of the oil causes a choking or suffocating sensation, sometimes with cough, intense dyspnœa with pain and difficulty in breathing. An existing cough may be aggravated. Respiration may not be quickened or the rate may be increased up to forty-eight. Breathing may be (but is not usually) stertorous. It has been recorded as slow, shallow, short, soft, sighing, laboured, interrupted, irregular or jerky. The breath smells of the oil. Eventually death ensues from paralysis of the respiratory centre.

The temperature is subnormal, down to 35° or 35.5° C. (95° or 96° F.). When pyrexia has been noted (in one case 39.4° C. or 103° F.), the illness for which the oil was taken, was probably the cause of the elevated temperature. Skin lesions are more rare than nervous manifestations. During the acute stage there may be shivering and a feeling of great cold, the extremities being cold and clammy. There may be a cold sweat on the skin which smells of the oil. The skin may be pallid or grey. One case was described in which the skin for three days displayed a yellowish-green hue like that of chlorosis. Other skin lesions are generalized erythema, urticaria with much itching, a vesicular eruption and generalized acute dermatitis.

The nervous system may be profoundly affected. Large doses are powerfully depressant to the brain, medulla and spinal cord. Reflex action is abolished. Occasionally there may be signs of cerebral congestion and irritation, with a feeling of fulness in the head, intense frontal and occipital headaches, pains in the chest and limbs, restlessness, exhilaration or feverish excitement, even delirium, twitchings and convulsive seizures. In one case the fingers were tightly clenched. But these symptoms are unusual. More often there is a feeling of dizziness or giddiness or a sensation of intoxication, followed by a dazed or drowsy feeling or a sense of calm with mental depression and blurring of the psychical faculties, the intellect having been clear at first. Sometimes knowledge of the position of the limbs is lost. Eventually unconsciousness and deep stupor or coma supervene with profound collapse. A man, forty-seven years old, was unconscious within half an hour after taking twenty mils (five drachms). In the earlier stages or in less severe cases there may be definite ataxia and patients stagger and fall if they try to walk. This stage is followed by intense muscular weakness, paresis or paralysis with the body and limbs flaccid. One patient could not move or lift his eyelids. Another could not keep his eyes open. Even after recovery patients have been unable to make any effort for a long time. The skin, particularly of the lower limbs, becomes insensitive and no reaction follows pinching. The pupils may remain active or be dilated and fixed, but are typically minutely contracted to a pin-point, as in morphine poisoning, and insensitive to light. The conjunctivæ are insensitive and the conjunctival reflex abolished.

The kidneys evidence irritation and congestion. The urine may be dark and it smells of the oil or of violets (as after turpentine) or like "new-mown hay." In one case there was suppression of urine for some hours; in another painful and excessive micturition. The oil is eliminated by the lungs, skin, bowels and kidneys.

Diagnosis has to be made from opium or morphine poisoning. The smell of the oil is characteristic. Stertorous breathing typical of morphine coma is not often seen in poisoning by eucalyptus oil.

The treatment recommended has been: emetics (zinc sulphate, sodium chloride, ipecacuanha or mustard), cold affusions to the head, warm blankets and hot-water bottles, ammonia (internally and by inhalation), coffee, caffeine hypodermically (made soluble by salicylate of soda), strychnine, whisky or brandy, oxygen inhalations.

In *The Medical Annual* for 1920 there is an account of thirty-four cases of poisoning by myrtol and eucalyptus oil, collected by Barker and Rowntree. Some were fatal. Myrtol, obtained from *Myrtus communis*, like eucalyptus oil, is used largely for bronchial troubles and the toxicology of both is very similar. In Australia cases of poisoning by eucalyptus oil are common and minor toxic symptoms after overdosage are very frequent. I have records of eight fatal cases in Australia. Idiosyncrasy is particularly noticeable in connexion with this oil and toxic symptoms have occurred after taking quite small doses. As a rule symptoms supervene in a few minutes. The minimum fatal dose for an adult (in several cases) has been a teaspoonful (four to five mils). Death generally follows the taking of thirty mils (an ounce). Rapid death followed the drinking (during a drunken orgy) of five hundred and sixty-eight mils (a pint). One patient died forty hours after taking the oil, relapsing after apparent recovery. Cases are on record of recovery after swallowing sixty mils (two ounces) and also after a "cupful." Recovery after considerable doses has taken place in from twelve hours to four days. One man took two weeks to recover after taking two or three teaspoonsful (eight to twelve mils). In one case pronounced

collapse ensued upon the taking of twelve drops. In another case the skin, breath, fæces and urine smelt of the oil for two weeks. In New South Wales eucalyptus oil can be sold without conforming to the British Pharmacopœia requirements, provided the label indicates that it is for external use only and is not to be taken internally. This is quite inadequate as a protection to the public.

Certain animals are apparently immune to the toxic effects of this oil. The native bear or koala (*Phascolarctus cinereus*) lives almost exclusively on gum leaves. Other arboreal marsupials, such as the various species of opossum and flying squirrel also consume large quantities of the leaves and flowers. Even stock, such as cattle and sheep, during times of drought, subsist largely on the leaves of various species, such as the Moreton Bay ash or carbene (*Eucalyptus tesselaris*). The golden or Christmas beetles (*Anoplognathi*) devour enormous quantities of the leaves. Other insects consuming relatively very large amounts are the manna insects (*Psyllidæ*) and many other species. On the other hand, we have records of the aborigines in Victoria and Queensland using fresh, leafy branches of different species to poison and stupefy fish and so render them easy to capture. Branches with fresh leaves were thrown into lagoons or pools of water and in a few hours or after several days the fish died and came to the surface or were stupefied and easily caught. The foliage of the coolibah or tangoon (*Eucalyptus microtheca*) was used for this purpose. It has been recorded also that in dogs to whom eucalyptus honey had been given in quantities up to one hundred and fifty to one hundred and seventy-five grammes (5 to 5.8 ounces) mixed with milk, had their pulse rate reduced from one hundred and twenty to seventy and their temperature lowered by one degree centigrade. Eucalyptus honey contains some eucalyptus oil.

Reports of Cases.

CUTANEOUS CHOLESTEROL DEPOSITS.[1]

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AND

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We are indebted to Dr. Keith Brown, Parramatta, for permission to show this patient, a man aged forty-five years, weight ninety kilograms (fourteen stone six pounds), height 1.8 metres (six feet), by occupation previously an ironmonger now a carrier. The patient presents raised, yellow and red, painless nodules in the skin, freely movable over the underlying tissues, situated on the hands, the dorsal surfaces of the elbows, the left forearm, the buttocks and the knees. They began on the knuckles, on the palmar surfaces of the fingers and on the elbows three or four years ago and slowly increased in size and number. The nodules are discrete, rather firm to the touch, the diameter varying from that of a pin's head up to fourteen millimetres and their height above the skin level reaches a maximum of four millimetres. The nodules of the dorsal surfaces of the hands are on the knuckles and over the interphalangeal joints, whereas on the palmar surface they are between the creases and lines and not in them. The largest nodules are on the dorsal aspect of the knuckles and fingers and these have a more reddish tinge which is apparently due to local erythema, because on pressure the reddish tinge disappears. These larger nodules have irregular contours, whereas the smaller nodules are more smooth. On the buttocks and elbows the nodules are bilaterally symmetrical, whereas on the radial surface of the left forearm there is a small unilateral group. Single hairs can be seen growing out of the centres of many small nodules.

Whilst admitting our ignorance of clinical dermatology, we suggest that the smaller lesions are those of *xanthoma multiplex* and as we have found that the largest nodules are deposits of cholesterol, we suggest that they are a later phase of the xanthoma lesions.

His complexion is dark and the iris is a greenish blue with irregular dark brown spots scattered over it. There is obvious *pyorrhœa alveolaris*. The nipples and penis are deeply pigmented. No gross abnormality was found in the chest or abdomen. He has complained of rheumatic pains in the shoulders. His appetite is apparently only moderate. He has two meals a day, but he is fond of butter and other fatty foods. He is somewhat overweight, but it is said to have been constant for eight years. He denies *potus*. His family history is without interest, excepting that there is some admixture of Spanish blood and that a brother weighs one hundred and twenty-six kilograms (twenty stone). To this latter point we will make reference later.

Examination by Laboratory Methods.

We attempted to scrape off a superficial portion of a large nodule on one knuckle for examination, but failed and a complete nodule from a knuckle was thereupon excised. One half was fixed in "Formalin" and both paraffin and frozen sections were cut and stained and the other half was examined by chemical means.

Paraffin sections show an inflammatory nodule beneath the epidermis consisting of fibroblasts, fibrous tissue, endothelial cells and hyaline strands which may be altered connective tissue bundles. There are no well-formed giant cells or typical xanthoma cells. There are empty spaces which we presume from other evidence (*vide infra*) were occupied by cholesterol crystals.

Frozen sections show a large accumulation of unstained hyaline material commencing immediately beneath the epidermis. Straight lines here and there showed the edges of crystals and the break in one edge characteristic of cholesterol was made out in several places. As xanthoma cells were not found in paraffin sections, we cannot describe these larger lesions as those of *xanthoma multiplex*. Whether they began as xanthoma and subsequent degeneration of the xanthoma cells was associated with crystallization of cholesterol *in situ*, we cannot say. We think that one is only justified in describing these larger nodules as "cholesterol tophi" (Parkes Weber).

Chemical examination by Grigaut's method revealed the presence of a large amount of cholesterol, but uratic salts were not found. His blood was drawn by venepuncture after a fast of fifteen hours. The serum was so rich in lipoids that it resembled cream and it was found to contain 0.63% cholesterol (normal 0.18%). The blood urea amounted to thirty-two milligrammes per hundred cubic centimetres of blood, which is within normal limits. The Van den Bergh test applied to the serum produced no reaction either by the direct or indirect methods. Blood films appeared quite normal. The blood serum did not give the Wassermann reaction.

The sugar tolerance curve after fifty grammes of glucose fell within normal limits.

Blood sugar before ingestion of fifty grammes of glucose was 0.109%; blood sugar half an hour after ingestion was 0.175%; blood sugar one hour after fifty grammes of glucose was 0.181%; blood sugar one and a half hour after

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 14, 1925.

fifty grammes of glucose was 0.118%; blood sugar two hours after fifty grammes of glucose was 0.104%. The urine contained no albumin and was free from sugar and acetone before and after the ingestion of fifty grammes of glucose.

Comment.

Cholesterol or cholesterin is a monatomic alcohol of complex structure and doubtful formula, sometimes given as C_{25} H_{47} OH, it is a constant constituent of protoplasm and is present in particular in the brain, in the medullary sheaths of nerves, in adrenal cortex, bile, blood and sebum. It may occur either as the alcohol or as an "ester" in combination with fatty acids. It is usually grouped with the lipoids. The metabolism of cholesterol is not well understood, but it is apparently related to fat metabolism. The greater part in man apparently comes from the food, probably both vegetable and animal foods, and a large proportion is excreted in the bile. Physiologically the blood cholesterol may be increased during pregnancy and in suckling women it is excreted in the milk. It is also increased by diets rich in lipoids. It is said that increase in blood cholesterol is usually proportional to that of neutral fat and lecithin, but that the former lags behind the latter.

Pathologically cholesterol is found in gouty tophi associated with uratic salts and in xanthomatous deposits (cholesterol tophi) where it is the chief constituent. Hypercholesterolæmia may be a congenital and familial metabolic peculiarity, the "cholesterol diathesis," it may sometimes be due to dietetic errors, it occurs in many cases of obstructive jaundice where it cannot be excreted in the bile, also in nephritis particularly in that form known as nephrosis. Its increase in diabetes is usually in proportion to the severity of the disease. Blood cholesterol is not regularly increased in cholelithiasis. Hypocholesterolæmia occurs in pernicious anæmia.

M. J. Stewart classified pathological cholesterol deposits into two groups, the first group being due to secondary changes in local lesions, such as necrotic or caseous areas, mammary cysts, pyosalpinx, dermoid cysts, cholesteatomata and various tumors, particularly the myelo-xanthomata of tendon sheaths, whilst the second group are those sometimes associated but not always with hypercholesterolæmia, for example, xanthoma, *arcus senilis* and albuminuric retinitis. Atheroma has also been described as a nodular xanthoma of arteries. According to Parkes Weber whose discussion of this aspect of the subject we have closely followed, the essential microscopical feature of cutaneous xanthoma is the xanthoma cell or "foamy cell." In frozen sections this is found by the polarizing microscope to contain doubly refracting globules of cholesterol esters, whereas in paraffin sections the cell is found to have a small, usually pyknotic nucleus and the cytoplasm is vacuolated because the lipoids have been dissolved. These cells are apparently of connective tissue origin and phagocytic in function, the macrophages of Metchnikoff or the histiocytes of Aschoff. Chalatow called this process "anisotropic fatty infiltration." It seems that the phagocytosis of ordinary fat may lead to the formation of pseudo-xanthoma cells containing globules of neutral fat.

Some experimental work has been done in this field. Bailey fed rabbits on a diet rich in cholesterol and produced anisotropic fatty infiltrations in various organs and atheroma of the aorta and pulmonary arteries.

Lebeden and Anitschkow produced xanthoma-like lesions by irritating the skin of cholesterol-fed rabbits. These experiments seem to explain the onset of xanthoma in the skins of jaundiced patients with hypercholesterolæmia, the local irritation determining the sites of the deposits. And in the patient we have shown, the cholesterol tophi are in situations exposed to traumata and friction. This explanation will not perhaps hold for all types of xanthoma, for example, *xanthoma palpebrarum*.

It is doubtful whether hypercholesterolæmia is generally associated with the presence of cholesterol deposits and xanthoma cells in inflammatory tissues and new growths. More probably local causes lead to the deposition or formation of cholesterol and its esters in morbid tissues. However, hypercholesterolæmia has been found in some cases of xantho-myeloma, the commonest tumor growing from tendon sheaths, in which both giant cells and "foamy" cells may be found. As Parker Weber says:

> The condition of hypercholesterolæmia might favour deposition of anisotropic lipoid material in true neoplasms as well as in inflammatory tumours. In fact, the nature and benignity or malignancy of a tumour containing xanthoma cells and giant cells must be decided, not by the presence of those cells, but by the appearances of the rest of the tissue of which the tumour is made up.

In this case the cholesterol deposits seem to be associated with a condition of lipæmia, so that there is a definite error in fat metabolism. This seems to concern the complex lipoids and the ultimate catabolism of fat seems to be carried out normally as there is no evidence of ketosis. Such persons are generally considered to be potential diabetics, but at present in this case the glycogenic function is normal so far as a sugar tolerance curve indicates.

It is interesting to note that the patient has a brother who also has a disordered fat metabolism seeing that he is one hundred and twenty-six kilograms (twenty stone) in weight.

We have referred to the hypocholesterolæmia of pernicious anæmia and as cholesterol is antihæmolytic it has been suggested that this deficiency plays some part in the hæmolysis. In this connexion we have found, however, that neither the serum of this patient nor that of another, suffering from nephritis and with a high cholesterol value, had any appreciable antihæmolytic effect when mixed with graded doses of guinea pig complement for fifteen hours at 2° to 5° C. Conversely we found that two specimens of serum, from patients with rheumatoid arthritis and a chronic skin disease respectively, though markedly antihæmolytic in the sense that they inhibited five doses of complement in a hæmolytic system, yet showed no increase in cholesterol. The antihæmolytic property was not due in these cases to bacterial contamination and it was possibly a constant feature of the sera, because it was confirmed by two subsequent reexaminations at intervals in each case. Therefore though cholesterol is a strongly anticomplementary substance, yet there seems to be no correlation between blood cholesterol and inhibition of guinea pig complement *in vitro*. We suggest that high cholesterol values may possibly neutralize human complement *in vivo* and may in this way be antihæmolytic and such neutralization may prevent further anticomplementary effects on added complement. Further work on these lines is indicated.

With regard to the treatment of this condition it is obvious that a diet restricted as to fatty and lipoid content should be the main principle. The blood and urine should be fully examined from time to time with a view to checking fat and carbo-hydrate metabolism.

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Reviews.

ORGANO-THERAPY, SERUM AND VACCINE THERAPY.

MUCH has been written on the subject of organo-therapy, serum and vaccine therapy, but there remains a wide unbridged gap between the physiologist and bacteriologist with their innumerable tables, curves *et cetera* showing results under carefully controlled experimental conditions and the clinician employing these substances in diverse clinical conditions often without diagnoses on the principle of "hit or miss then try another." Rarely is there a group of patients with comparable conditions treated under comparable conditions. In his second book on this aspect of medicine, Carmalt Jones[1] has taken a conservative stand such as we like to see from one occupying the Chair of Systematic Medicine in our sister Dominion.

Part I., of eighty-eight pages only, is devoted to organo-therapy; Part II., no less than three hundred and two pages, to immunity and the use of sera and vaccines, both specific and non-specific, therapeutic and prophylactic. He is careful to distinguish in Part I. between the physiological replacement of a missing or deficient internal secretion and the pharmacological exploitation of an organ-extract. The doses of thyreoid extract are commonly too large, for the absence of the entire organ can be compensated for by 0.16 gramme (four grains) per week. Whilst essential in myxœdema, cretinism and *formes frustes* of these, it is often of use in infantilism, menstrual disorders and so forth, but some practitioners prescribe thyreoid as frequently as others do salicylate of soda and the patent medicine man drops some into his antifat cure.

The author points out why the use of adrenalin cannot replace suprarenal gland function and concedes it utility only as a local hæmostatic, as an antispasmodic in asthma, as a pyloric constrictor and as a last resort in heart failure.

Pituitary extracts as a substitute for the deficient gland would seem to be of use only in Fröhlich's syndrome. Like adrenalin it has greater uses as a drug, mainly as a stimulant for plain muscle in the second stage of labour, in intestinal paresis and in grave conditions with low blood pressure. The use of pituitary gland for migraine is not emphasized.

"Insulin" and sex gland extracts are dealt with in short chapters.

The discussion of active and passive immunity are along orthodox lines and the author is obviously a disciple of Sir Almroth Wright. He deals thoroughly with specific diagnosis, microscopical and cultural methods, agglutination, precipitin and complement fixation reactions and sensitivity tests.

The methods of preparation of simple bacterial vaccines, also of detoxicated and sensitized vaccines and methods of administration and control are amply explained. Protein shock therapy and non-specific serum therapy are not greatly welcomed. His case for serum therapy depends upon the antitoxic or antiendotoxic properties, not upon the bactericidal. Keynes's method of blood transfusion by the use of citrated blood is favoured. The reader is now switched off on to prophylactic immunization with vaccines, is brought back again to serum therapy in detail, only to be faced afterwards with vaccine therapy. It would have been more satisfactory if these subjects had not been dispersed in this way. However, the treatment is thorough, up-to-date and impartial and is a very praiseworthy effort to deal with such a vast subject. The author is a consistent supporter of specific immunization as a therapeutic measure, hence he prefers autogenous vaccines wherever possible. For example, he believes that bronchial asthma is often the result of bacterial infections of the respiratory tract and that good results are often obtained by vaccine therapy even where mixed infection is indicated by cultural examinations. Here and there are overstatements, such as that "*acne vulgaris* is due to infection with an anærobic diptheroid bacillus" (*Bacillus acnes*).

A special chapter on tuberculins reveals again Wright's method of treating surgical tuberculosis by the use of small doses, but although he recommends only bacillary emulsion he quotes Camac Wilkinson, R. W. Philip and others who treat almost all forms of tuberculosis and claim excellent results, some using both bovine and human preparations and attaining large doses. Spahlinger's methods are little understood and relapses are liable to occur.

There is an appendix in which are discussed Wright's "new principles in therapeutic inoculation," attempts to turn the scale in septicæmia by intravenous inoculations of certain doses of non autogenous bacterial antigens or by immuno-transfusion where there is definite depression of immune responses. The author finds difficulties in reconciling such principles with that of the specificity of antigens and apparently the results recently obtained in London have not been noteworthy.

The methods of Besredka and Dreyer are also explained and discussed.

There is no bibliography, but numerous useful references are given in the text.

Altogether one must admit this work has been carefully done and clinical opinion has not been neglected. It should be in the hands of all practitioners who are interested in rational vaccine and serum therapy, and it will provide a useful check upon those who are disposed to believe that the era of organotherapy has already arrived or with whom non-specific protein or peptone therapy is the fashion.

[1] "Organic Substances, Sera and Vaccines in Physiological Therapeutics," by D. W. Carmalt Jones, M.D. (Oxon.), F.R.C.P. (London); 1924. London: William Heinemann (Medical Books) Limited. Demy 8vo., pp. vii. + 393.

A TEXT-BOOK OF PATHOLOGY.

ROBERT MUIR'S text-book of pathology fills a long felt want.[1] For some years past a good text-book of pathology, suitable for students, has been sorely needed. The want has now been met, for this volume has obviously been compiled with the student's requirements and the student's capacity ever present in the author's mind. Nor will its usefulness be limited to students, for the general practitioner and indeed the specialist will find in its pages a brief concise exposition of the main features of almost every lesion and pathological complex that are likely to be encountered.

Naturally in a comparatively small volume much information must be excluded, but this is where the author has shown the masterly judgement that comes of his ripe experience. His selection has been so wise, his arrangement so orderly, that a most evenly balanced book is the result.

Subjects of lesser importance appear in small type and thus an indication is given to the reader as to what the author regards as deserving of intensive study. There is a tendency nowadays for books on pathology and kindred subjects to be nothing but compilations; they leave the reader cold, for they are palpably mere collections, without that personal touch that gives a glow to every phrase.

Robert Muir's work is unlike these, for each sentence bears the imprint of the writer. One feels that he is narrating his own experiences, recording his own observations and not merely compiling data from the works of others. In pathology Scotland has a tradition to maintain. It has been said that there a doctor may be a physician or he may be a surgeon but he is first and foremost a pathologist and this is in keeping with that tradition. The merits of the book will perhaps be best appreciated by teachers of pathology who will have no hesitation in recommending it to their students.

[1] "Text-book of Pathology," by Robert Muir, M.A., M.D., Sc.D., F.R.S.; 1924. London: Edward Arnold & Company. Royal 8vo., pp. 774, with illustrations. Price 35s.

The Medical Journal of Australia

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Chemical Messengers.

It was a happy thought of the Council of the Victorian Branch of the British Medical Association to inaugurate its scientific discussions in its new home with a paper by Dr. C. H. Kellaway, the Director of the Walter and Eliza Hall Institute for Research in Pathology and Medicine. The article is published in this issue as are the remarks by Professor W. A. Osborne and Dr. S. V. Sewell. Dr. Kellaway is to be congratulated on his admirable presentation of our knowledge of the physiology of the glands of internal secretion. The subject is fraught with great difficulties. The epithet "insuperable" appears to be almost applicable, yet we hesitate to employ it in view of the advances in biochemical science of the last two decades.

It is exactly twenty years ago since Professor E. H. Starling delivered the Croonian Lectures on the same subject. In these remarkable lectures he elaborated his hypothesis of the chemical messengers or hormones. His arguments were traced from point to point with such forcible logic and such sound reasoning that they were accepted almost at once by the world of physiology. The fundamental conception of a chemical correlation of organs and tissues of the body is unassailable; Professor Starling did not deny the existence of a nervous or psychical coordination, although he relegated it to a second place in regard to many of the glands and organs. He demonstrated the presence of chemical messengers whose function is the regulation of the provision of the biological fluids of digestion, growth and nutrition. He postulated excitant as well as inhibitory bodies, assimilative as well as dissimilative agents, but admitted the complexity of the mechanisms and the difficulty of ascertaining the nature of the action of many hormones because their chemical structure had not been ascertained. That was twenty years ago. In 1913, Professor Sir A. E. Schäfer spoke at the International Medical Congress of the correlating substances and suggested that Starling's term hormone should be reserved for the excitant bodies, while the term chalone should be introduced for the inhibitory. He referred to the proposal of W. R. Wardle that a comprehensive term for both kinds of chemical messengers, autocoid, should be recognized, because of their drug-like action. Professor Gley thought that harmasone would suit this need, for these substances ruled or regulated. In reply to all these suggestions, Professor Starling pointed out that it would be premature to introduce any classification of the hormones, because scarcely anything was known of their mode of action. During the twelve years that have elapsed since the International Medical Congress in London an astonishing amount has been written on the so-called endocrine glands, but very little accurate knowledge of the nature and mode of action of the chemical messengers has been added to the information given by Starling in 1905. It is true that the hypotheses of vagotonia and sympatheticonia and of antagonistic innervation have been evolved, but as Dr. Kellaway has shown these doctrines have brought but little illumination on the obscure picture of the interrelation of the glands of internal secretion. Fuller understanding must follow diligent research, but it may be helpful to endeavour to gain a clearer conception of part of the problem by seeking to differentiate the rôle of the chemical messenger from that of the biochemical secretions of organs endowed with specific physiological functions. A chemical messenger or hormone, according to Starling, is a drug-like substance, not a toxin. It may be possessed of organ or tissue specificity, although this would not appear to be an essential attribute. But its proper quality is that it acts by inducing some other body to appear and produce a physiological effect without exercising a direct physiological effect itself. Intestinal secretin acts on the pancreas, liver, intestine and stomach in order that the digestive secretion of the pancreas, the bile, the *succus entericus* and the acid secretion of the pyloric glands may be liberated in suitable quantity and at the right moment. The conversion of trypsinogen into trypsin seems to be regulated by enterokinase through the intermediation of secretin.

According to Professor Starling adrenalin is a chemical messenger or hormone; it acts as an excitant to the sympathetic system. In itself it has no action on the arterioles or capillaries. If this conception of the hormones be correct, it becomes necessary to raise the question whether we are justified in classifying all internal secretions as hormones. It must be remembered that the secretins are formed in the mucous membranes of the gastro-intestinal canal, not in so-called glands of internal secretion. In the next place Professor Starling showed quite conclusively that the mammary hormone is a fœtal product. Does it not seem to be an assumption to label the secretion of a gland its hormone, merely because it is known that the gland has a definite relation to other glands or tissues? The substance derived from the interstitial cells of the testis or of the ovary appears to regulate the secondary sexual characters. But until this substance has been isolated and until it has been shown that it acts indirectly as a chemical messenger and not as a direct agent, it is speculation to speak of the testicular or ovarian hormone.

Dr. S. V. Sewell referred to the strange difference between the action of adrenalin and thyroxin. The former has but a feeble therapeutic action, while the latter acts therapeutically as by magic. Kendall has shown that thyroxin is potent in virtue of its iodine content and in virtue of the nature of the chemical binding of the iodine. It is extremely unlikely that iodine acts indirectly as a messenger. It becomes incorporated in protoplasmic matter and forms part of functional tissue. Surely a direct agent. It is, of course, possible that thyroxin may have a double action. It may be a chemical messenger, regulating growth and metabolism, and a direct agent offering iodine to tissues possessing an avidity for this element. Goldman demonstrated several years ago in his celebrated experiments on vital staining how certain tissues claimed iodine introduced into the body in the order of their affinity for it. But until more evidence is available, it seems more reasonable to question the hormonic action of thyroxin.

In a similar manner the question may be raised whether the product of the islet cells of the pancreas is a true hormone. The fact that it is drug-like in being relatively thermo-stabile and in not acting as an antigen renders it not improbable that it acts merely as a chemical messenger. Moreover, the available evidence appears to suggest that it regulates the metabolism of carbohydrates rather than that it carries the metabolism into effect. The therapeutic efficacy under proper control of artificially prepared extracts of the island tissue, however, bids us hesitate in accepting this reply. It would therefore be wiser to withhold judgement in regard to this substance.

Professor Osborne's warning is very timely. Much of the reasoning of those who have written on endocrinology is illogical and the greater part of glandular therapy is unscientific and futile. There is so little accurate knowledge concerning the biochemistry and biophysics of the extracts of the glands of internal secretion that we feel justified in bidding medical practitioners to think many times before they use these preparations save when the indications are unmistakable.

Current Comment.

THE PATHOGENESIS OF CANCER.

THE cabled reports that have appeared in the daily newspapers concerning the work of Dr. W. E. Gye and Mr. J. E. Barnard at the National Institute of Medical Research, at Mount Vernon, Hampstead, would not have merited notice in these columns, had it not been for the appearance in *The Sydney Morning Herald* of July 16, 1925, of a brief summary culled from *The Lancet* of Dr. Gye's communication. Until full details of the researches are available, it will be unwise and hazardous to express a positive opinion. The information to hand, however, demands some discussion. It appears that Dr. Gye claims that he has isolated and cultured an ultramicroscopical virus from carcinomata and sarcomata of fowls, mice, rats, dogs and man. He regards it as probable that this virus is intracellular. The virus freed from adherent material did not produce any neoplastic change when inoculated into a healthy animal. Extracts of tumours were made and freed from the virus. Injection of these extracts together with the virus gave rise to the same neoplasm as that from which the extract was derived, when injected into healthy animals. Dr. Gye concludes that the extracts contain a specific factor for the several forms of malignant tumours. He claims that this specific factor is specific not only in regard to the nature of the neoplasm, but also in regard to the species of

animal. Thus the extract of an adeno-carcinoma of the mouse together with the virus gained from any tumour would produce an adeno-carcinoma in a healthy mouse, but no tumour in any other animal.

Cancer viruses have been discovered on many occasions. Sjöbring, Plimmer and several others have found what they believed to be the causal organism of cancer, but it has been shown that they were mistaken. Doyen's claim, too, had but a short life. The cells of every form of malignant growth have been examined under all kinds of staining conditions by means of both ordinary microscopical illumination and of dark field illumination. Ultramicroscopical or dark field illumination has been used in the examination of sections of tissues in the search for *Spirochæta pallida* which is a relatively large organism, but staining methods have led to better results.

Ultramicroscopical viruses of other diseases have been discovered on numerous occasions. At the International Medical Congress of 1913, Sir John Macfadyean received almost universal support when he maintained that despite all the claims, very few real filter-passing organisms had been proved to exist. In the influenza pandemic of 1918-1919 the filter-passing organism again came into prominence, but within a relatively short time it was discredited. If Dr. Gye's experimental evidence can be confirmed, the infecting organism would probably be an animal parasite, a protozoon, not a vegetable parasite, a bacterium. This point is of importance in view of the work of d'Herelle on bacteriophages. The association of a specific factor and a virus suggests a similarity to the association of a bacteriophage and a bacterium.

Tumour extracts both filtered and unfiltered have been injected on countless occasions into healthy animals of the same species. If the virus resides in the tumour cells, why have these inoculations with unfiltered extracts failed to give rise to malignant growths, while implantation of the tumour cells themselves has "taken"? Either Dr. Gye has elaborated some special technique or the pathogenesis of cancer is not as he describes it. It therefore becomes essential to ascertain what methods were adopted in his experiments. The work will have to be repeated by many other workers before it can be accepted. The majority of pathologists and clinicians have long since discarded the theory of cancer being an infective process. The evidence appears to preclude this. If Dr. Gye's work is correct, much information will have to be sought concerning the mechanism of the infection. It is easy to conceive an infection with a virus, but far less so to imagine how the specific factor could be conveyed to a healthy animal or man.

The discovery of the true cause of cancer would be a far greater achievement than the discovery of a cure. Armed with knowledge concerning the cause of a chronic and fatal disease, the medical profession could set to work to prevent its occurrence. Without this knowledge prophylaxis is practically impossible. For this reason alone it is to be hoped that Dr. Gye and Mr. Barnard have succeeded after all others have failed. For the present, however, the proper attitude to adopt is one of suspended judgement.

A NEW JOURNAL OF VENEREAL DISEASE.

Venereal diseases are so widespread, they appear under the cloak of so many concomitant diseases, their immediate effects on the human organism are so pronounced and their ultimate sequelæ are so surreptitious and gradual that a knowledge of their protean manifestations has become of paramount importance to medical practitioners. For this reason the advent of *The British Journal of Venereal Diseases* is welcome. The first number has been issued by the Medical Society for the Study of Venereal Disease. It is a publication of seventy-two royal octavo pages and will appear quarterly. The editors are Colonel L. W. Harrison, well known for his work on venereal disease, and Dr. E. R. T. Clarkson, the Honorary Secretary of the Society. An introduction has been written by Sir Humphry Rolleston. He emphasizes the fact that a knowledge of the subjects is essential to a right understanding of all branches of medicine and surgery and quotes the dictum of the late William Osler that "a thorough knowledge of visceral syphilis makes a man a good general medical clinician."

It is proposed in successive issues to cover the subject by original articles and reviews dealing in turn with the following aspects: (i.) syphilis, (ii.) gonorrhœa, (iii.) pathology and biochemistry of venereal disease, (iv.) neurology in relation to venereal disease, (v.) dermatology in relation to venereal disease, (vi.) pædiatrics and gynæcology in relation to venereal disease, (vii.) urology in relation to venereal disease (viii.) sociology in relation to venereal disease. In the first issue will be found an article by Colonel Harrison on "The Public Health Services and Venereal Disease" and one by Dr. E. T. Cumberbatch and Dr. C. A. Robinson on "The Use of Diathermy in Cases of Gonococcal Infection." Dr. W. J. Tulloch has contributed "Notes on the Complement Fixation Reaction in Gonorrhœa." The use of bismuth in the treatment of syphilis is discussed by Dr. E. T. Burke and by Dr. Svend Lomholt each of whom contributes an article. Dr. R. N. Ironside writes about the treatment of general paralysis of the insane by malarial inoculation and Dr. Henry C. Semon on skin affections commonly mistaken for syphilis.

SKIAGRAMS BY TELEPHONE.

The Australian General Electric Company, Limited, informs us that the International General Electric Company, of America, has recently succeeded in transmitting a skiagram from New York to Chicago in seven minutes by telephone. It is claimed that the picture received in Chicago revealed all the structural details of the bones of the human hand present in the negative in New York.

Abstracts from Current Medical Literature.

SURGERY.

Trigeminal Neuralgia.

W. T. COUGHLIN (*Illinois Medical Journal*, January, 1925) discusses the most recent advances in the surgery of trigeminal neuralgia. Describing a typical history he quotes the case of a man suddenly seized with pain in some part supplied by the middle branch of the nerve (floor of mouth, cheek, tongue) which rapidly spreads over the whole side of the face from chin to vertex. Often one side of the face is congested and flushed and tears run from the eye. When the spasm passes the patient is generally free from pain. The spasms recur for a few days and then leave the patient altogether till the next attack—perhaps in six months or a year. Gradually the intervals between attacks shorten and the duration of the attack lengthens. There is no known ætiology and there are no known pathological changes. Differential diagnosis from other forms of neuralgia due to sinus disease and perhaps cancer must be made before operation and a rhinologist and radiologist consulted. The surgery of the disease comprises three surgical procedures: (i.) For palliation deep alcohol injection into the division involved where it leaves the skull; (ii.) for permanent cure the sectioning of the sensory root of the nerve proximal to the ganglion; (iii.) the removal of the ganglion itself. Alcohol injection relieves at first, but after each injection the period before recurrence shortens and the spasms generally recur in a year or less. The injections are not free from danger, as cases are known in which an eye has been lost and the hearing lost. At first surgery of the fifth nerve was confined to simple section of the affected branch, later a section of the nerve was removed and finally Thiersch carried out removal of the root and of the branch involved. Rose, a pupil of Horsley, first removed the Gasserian ganglion in 1890. Horsley, of London, Hartley, of New York, and Krause, of Germany, removed the ganglion between 1890 and 1892. The method used by them consists in opening the skull on the side, in using the osteoplastic flap of Wagner, in lifting up the dura and removing the ganglion. This method has been long used and is known as the Hartley-Krause method. French surgeons popularized the low method of approach, the bone being bitten away with a *rougeur* and this is the method now usually employed. Division of the sensory root proximal to the ganglion was suggested to avoid the high mortality of ganglionectomy. This was first adopted by Fraser, of Philadelphia, and is now the operation most often performed. It is far less dangerous and just as successful as ganglionectomy. The ideal method comprises the use of local anæsthesia with saving of the motor root. The author reports thirty-three operations done in this manner without mortality and 100% cures.

Complete Thyreoidectomy.

OTIS M. WALTER (*Illinois Medical Journal*, January, 1925) presents a preliminary report on the complete surgical removal of the thyreoid gland which he has been led to consider on account of the frequent post-operative recurrence of exophthalmic goître, the incomplete recovery and the increase of symptoms shortly after the operation. The risk of causing myxœdema in adults from whom the whole gland is removed, is small. The proportion is not one in five hundred cases according to Crile and if myxœdema follows, it is easily corrected by administration of intermittent doses of thyreoid extract. The author reports two histories among seven patients whom he has subjected to complete removal; all were suffering from thyreo-toxicosis. The conclusions he comes to are that: (i.) Complete thyreoidectomy in the adult does not cause myxœdema, (ii.) there has been no evidence of recurrences, (iii.) the temporary exaggeration of symptoms which frequently follow operative interference, is not observed and (iv.) the period of convalescence is reduced.

Cranio-Cerebral Injuries.

PAUL E. GREENLEAF (*Illinois Medical Journal*, January, 1925) delivering an address on cranio-cerebral injuries, concussion and compression and the treatment thereof, draws attention to the fact that head injuries are on the increase owing to the frequency of automobile and traffic accidents. He points out that unimportant head injuries may have caused grave damage to the brain and require decompression at a later date. Some sign of concussion or compression is present in every head injury to a mild, moderate or a severe degree. It is most important to recognize when concussion ends and compression begins. Operations for the relief of compression should always be done before the danger signs of medullary involvement appear. Spinal puncture should be done in every instance of suspected compression as a routine diagnostic method and to relieve symptoms. The author points out as a peculiar and unexplained fact that elevation of temperature in the axilla on the side opposite the lesion often acts as a diagnostic point. Dangerous compression is indicated by progressively increasing stupor, slow pulse, high blood pressure, contracted pupils, Cheyne-Stokes breathing. These patients should be submitted to decompression operations before other vital centres in the medulla are involved, as recovery after this stage is very rare and the condition rapidly becomes hopeless.

Syphilis and Carcinoma.

O. SACHS (*Wiener Medizinische Wochenschrift*, February 28, 1925) discusses the relationship between syphilis and carcinoma. He cites eleven cases of syphilitic leukoplakia of the lips, tongue and buccal mucous membrane in which definite carcinomatous changes were found. Some of the patients were seen before the "Salvarsan" era, but others had been given energetic mercurial and arsenical treatment. He lays stress on the need for thorough anti-syphilitic treatment associated with a careful oral and dental toilet. Drugs which are too strong, must not be employed. When carcinoma supervenes, surgical measures alone are to be considered.

Acute Intestinal Obstruction.

W. H. HOWELL (*The Atlantic Medical Journal*, April, 1925) gives an original symposium on acute intestinal obstruction. Unlike many acute abdominal conditions, acute obstruction demands immediate and proper surgical intervention, otherwise the mortality is 100%. The surgeon should never procrastinate in dealing with obstruction. The physician has an opportunity of seeing patients during the early stages, but the consulting surgeon most often sees them only in the last stages of the classical clinical picture. The prognosis in obstruction is always in proportion to the time from the onset before surgical relief. The fatal mistake of "waiting till morning" or "trying another enema" is wrong and Deaver's axiom, "when in doubt reveal the light of day with the aseptic scalpel," is sound. The exact toxin producing death in ileus has not been isolated. Whether it be a proteose, hetero-proteose or histamin or whether death be due to dehydration, there is always present some toxic agent producing a high blood urea and there is always a decrease in the blood and urinary chlorides. The toxin may be recovered from the stagnant intestinal contents especially from the upper part of the jejunum. This material if injected into a healthy dog, produces symptoms akin to those of obstruction. If the bowel of a dog is tied artificially but the animal is supplied with chlorides, death from obstruction is staved off for at least twenty-eight days and if the blockage is released before this time, the dog will recover. Three very important factors enter into the treatment, namely, the relief from toxæmia, the relief from the obstruction when possible and the reconstitution to the normal of the blood constituents. It is necessary to establish an enterostomy as far up the bowel as possible in order to allow removal of the fœtid contents by drainage. Lavage is essential. Local anæsthesia is desirable and lastly subcutaneous injections of five hundred cubic centimetres of normal salt solution should be given every six hours until the normal amount of sodium chloride appears in the blood and urine and the blood urea is decreased to a normal quantity.

Postoperative Intestinal Obstruction.

JOHN B. DEAVER (*The Atlantic Medical Journal*, April, 1925) gives his views on postoperative intestinal obstruction. The most common conditions giving rise to acute abdominal pain in a patient otherwise well who has not previously been operated upon, are in order of frequency acute appendicitis, acute calculous cholecystitis, strangulation of an external hernia, perforated duodenal or gastric ulcer, acute pancreatitis and mesenteric thrombosis. In postoperative intestinal obstruction the most common lesions are adhesions or membranes or bands. Early obstruction after an inflammatory condition is due to the agglutination of coils of gut, but later obstruction is due to bands. When a patient with a history of an acute abdominal condition presents a scar, the result of a previous abdominal operation, and complains of attacks of intermittent pain, obstruction should be suspected and operation considered. Thus the naked abdomen should always be examined. The characteristic symptoms of early obstruction are intermittent cramp-like pain, followed by nausea and vomiting. The pulse and temperature are at first normal or subnormal. In early obstruction there is hyperperistalsis occurring in waves, while later on peristalsis is decreased and still later absent. In these later stages the listening ear will hear a tinkling, due to the wave of the fluid contents of the intestine caused by the descent of the diaphragm. This with the silent belly is of serious significance. With agglutinated coils of bowel tenderness at the site of the collection may be an important sign. Lavage of the stomach in obstruction yields foul-smelling dark fluid, while in the absence of a block and in early paresis the lavage gives only bile stained but not foul-smelling material. The stomach tube introduced promptly is one of the most important aids to diagnosis. High jejunal drainage alone in acute but late cases does not cure. In purely paretic conditions it may be said to be curative sometimes, for without it the patient would die. Early operation is all important.

Carbuncle of the Kidney.

CHARLES P. MATHE (*California and Western Medicine*, December, 1924) reports a case of carbuncle of the kidney and reviews the literature on the subject. He describes the condition as a circumscribed infective inflammation with the formation of multiple foci of necrosis often ending in a suppurating slough. Israel pointed out in 1894 that carbuncle of the kidney was a clinical entity and later on additional cases were reported by others. The clinical picture is quite different from that of renal abscess, single or multiple, or septic infarct. Infection is carried by the blood stream, generally from a staphylococcal infection of the skin or bone. In the case reported by the author *Staphylococcus aureus* was found in the blood stream both before and after operation. Trauma may determine the site of lodgement of the organism. A secondary perinephritic abscess may occur and obscure the original lesion at operation. The author's patient was a young woman, aged twenty-three years, who had previously suffered from boils on the face and chin. The kidney condition made its appearance a month later and the patient complained of dysuria. A leucocytosis was present and X ray examination of the kidney revealed enlargement, but no calculus. Nephrectomy was performed. The preoperative diagnosis is extremely difficult. In four only out of twenty-two patients operated on was the condition diagnosed prior to operation. Simple incision is not sufficient and subsequent nephrectomy is generally required.

Fractures of the Femur.

EARLE CONWELL (*Surgery, Gynecology and Obstetrics*, January, 1925) presents an article dealing with fracture of the femur and the results of treatment by traction and suspension. Fractures demand skill and judgement on the part of the most experienced surgeons and have a most important relation to modern economic life in reference to workmen's compensation claims. A cripple is a source of expense to himself, to his employer and to the State. Proper splinting, the combating of shock and immediate reduction should be done. All femur fractures should be treated as serious major surgical conditions in hospital. Careful X ray pictures in different planes must be taken and studied. An anæsthetic is advisable in all possible conditions. Very efficient treatment is by means of skeletal traction, knee flexion and suspension, with the modification of the Balkan frame. It is necessary frequently to check the position by X ray examination and such important contributory methods as radiant light, massage, diathermy and active and passive movements should be carried out from start to finish. As soon as enough callus has formed, the limb is to be removed from the splints and easily removable supportive splints substituted. At the earliest possible time all splints are to be removed and weight bearing should be allowed with the aid of crutches. Compound fractures are to be regarded as wounds and treated appropriately, subsequently they should be treated as simple fractures. Circular plaster casts are not to be applied. Open reduction is always to be avoided until a fair trial with skeletal traction and suspension has been given.

Acute Pancreatitis.

W. SEBENING (*Klinische Wochenschrift*, April 16, 1925) gives an analysis of his observations in twenty-five patients suffering from acute pancreatitis. Contrary to text-book statements fifteen females and ten males were affected. The majority of the patients were between forty and sixty years of age. In 80% the pancreatic condition was associated with lesions of the biliary tract. The author considers that acute pancreatitis is mainly a complication of gall stones. Early operation gives the best results; in his series he had a recovery rate of 76%. The gall bladder was always dealt with at the same time, if it was affected. Cholecystectomy and cholecystostomy were each done once, while choledochotomy and drainage were performed in thirteen instances.

Effect of Pituitary Extract on the Gall Bladder.

W. SCHÖNDUBE (*Klinische Wochenschrift*, April 2, 1925) maintains that subcutaneous or intravenous injections of pituitary extract will within twenty-five to thirty minutes cause a reflex emptying of the normal gall bladder. This is due to active muscular contractions and was observed by means of the duodenal tube. In the majority of abnormal conditions of the gall bladder this pituitrin reflex was absent. In many pathological conditions the capacity for concentration of bile in the gall bladder is definitely decreased and the muscular reaction lowered.

Appendicitis in Elderly Persons.

L. SCHÖNBAUER (*Wiener Medizinische Wochenschrift*, March 28, 1925) states that out of 1,769 cases of appendicitis at Eiselsberg's clinic fourteen occurred in patients over sixty. The mortality with these was 65%. Many of the cases were noteworthy for the length of time which elapsed between the onset of symptoms and diagnosis. The principal sign in diagnosis is right sided pain and rigidity. The result of operation depends chiefly on an early correct diagnosis of the condition.

Colles's Fracture.

H. MEYER (*Klinische Wochenschrift*, March 19, 1925) states that in fractures of the lower end of the radius the most frequent complications are avulsion of the ulnar styloid process and fracture of the carpal bones. Although these may be diagnosed by palpation, a radiogram should be taken of every case. The fracture should be completely reduced as soon as possible and the hand dorsiflexed 30° with the forearm midway between supination and pronation. Dorsal and palmar splints should be used for eight days and their use should be followed by massage and active and passive movements. The patient is usually unable to return to work for three to seven weeks. Injuries to the median and ulnar nerves are seldom seen in typical cases. Fracture of the *os navicularis* is best treated by dorsal and radial flexion for fourteen days followed by massage and movement. Atrophy of the bone and secondary arthritic changes frequently occur. Operation is reserved for cases in which conservative measures fail. Unless the fragments in fracture of the *os lunatum* can be replaced, they should be removed by operation.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Albert Street, East Melbourne, on May 27, 1925, DR. H. DOUGLAS STEPHENS, the Vice-President, in the chair.

DR. STEPHENS apologized for the absence of the President, Dr. S. S. Argyle, who much to his disappointment had found it impossible to be present on the important occasion of the first scientific meeting of the Branch to be held in the new building.

The Branch was under great obligation to the Committee of Management of the Melbourne Hospital and to the Trustees of the Walter and Eliza Hall Institute who had very kindly provided them with accommodation for their meetings during the preceding three years. By way of courtesy to the Walter and Eliza Hall Institute the Scientific Sub-Committee of the Council had invited the Director, Dr. Charles Kellaway, to deliver the inaugural scientific lecture in the new hall.

He would ask Professor Osborne, as representing the University of Melbourne and the Medical School, and Dr. Sewell, as representing the oldest clinical school, that of the Melbourne Hospital, to follow Dr. Kellaway.

Endocrine Therapy.

DR. C. H. KELLAWAY read a paper entitled: "Endocrinology and Modern Medicine" (see page 99).

PROFESSOR W. A. OSBORNE said that he esteemed it an honour to have been asked to open the discussion on the historic occasion of the first scientific meeting in the new hall. He knew that the compliment was directed to the University and particularly to its Medical School and on behalf of that body he wished to return thanks. It gave him special pleasure to follow his friend, Dr. Kellaway, who had given them an address displaying scholarship and what did not always accompany scholarship, judgement.

He had only one adverse criticism to make. The lecturer who had opportunities to quote the conclusions of a research worker whose investigations were in the front line of endocrine physiology and pharmacology, omitted to do so; indeed he treated this worker unfairly, his name was Charles Kellaway.

He took the opportunity of paying tribute to the pleasure he had received in reading the technical journals, when amid the sound and fury of clinical endocrinology he heard the calm, sane voice of the scientific experimentalist. For it must be admitted that a large section of the medical world had taken the endocrine bit in its teeth and bolted. There were enthusiasts who would not have surprised him had they declared that the vials poured out by the angels in the book of "The Revelation" and productive of mighty effects of cosmic extension, contained pluriglandular extracts.

Some highly illogical reasoning had been indulged in, reminding him of his first scientific experiment, for which he received severe parental correction. He had obtained a gimlet and bored a hole through the wooden casing of a grandfather clock in the region of the works. Something had happened. There was a whizzing, the hands spun round with an angular velocity unanticipated by the maker and the hours had tripped over each other in their striking. Soon the weights reached the floor and the clock's metabolism had ceased. Now there was a certain type of mind that would declare from this that gimlets were the cause of the clock's inactivity. A clock going fast would be hypergimleted, one going slowly, hypogimleted, whilst a good timepiece would be called an orthogimletic clock.

In the therapeutics and pharmacology of the ductless glands was not the prevailing note one of disappointment? In how few cases could they rectify the results of underactivity by the administration of glandular extracts! How sanguine they all had been when adrenalin was discovered, whilst today this hormone had been described as a rather superior cobweb in small hæmorrhages!

The local anæmia which adrenalin produced could be put to some service as they all knew. One of the best was the stoppage of absorption in the stomach of cyanides and non-corrosive poisons generally, giving time for evacuation or chemical neutralization. This work which was better known in Mexico than in Victoria, and the published account of which had been copied *in extenso* by *The British Medical Journal* from THE MEDICAL JOURNAL OF AUSTRALIA, had emanated, he was pleased to think, from his laboratory and was the work of one of themselves.

Professor Osborne said that in dealing with adrenalin, as with other endocrine principles, there was a danger of forgetting the function which it played in the body as a whole in fastening upon the changes it induced in individual organs. The anomalous action on the sweat glands was only anomalous if they made up their minds that adrenalin must act through all the sympathetic effectors. But it was not anomalous if they kept in view the true or main function of adrenalin which was to produce a mass transference of blood from the skin and abdominal viscera to the muscles preparatory to or concomitant with severe exercise under emotional excitement.

The action of "Pituitrin" was certainly very puzzling. Whilst with adrenalin there was coordination in its action, "Pituitrin" displayed no coordination at all. Smooth muscle irrespective of innervation and function was excited. In the female the uterus contracted and milk was expelled from the mammæ as the result of the injection of an extract of the pituitary body of the mole.

The lecturer had omitted, he presumed deliberately, any reference to disturbances of purin metabolism due to parathyreoid inadequacy. He noted that Clara Jacobson in her summary of recent parathyreoid investigations in the *Ergebnisse der Physiologie* supported Noel Paton and laid considerable emphasis on the possibility of guanidin and methyl guanidin being the toxic agents in the tetany following removal of these glands.

In this connexion he wished to mention that to the best of his knowledge and belief the first successful cure of tetany by transplantation of living parathyreoid tissue had been carried out in Victoria.

In conclusion Professor Osborne said that he must repeat that their feeling was one of disappointment at the results of endocrine administration. The triumph of thyreoid medication for thyreoid inadequacy had never been repeated with other glands. He wished to thank the lecturer for his useful, stimulating and to him informative address.

DR. S. V. SEWELL said that he took pride in the fact that he had been asked to speak as a representative of the clinical school of the Melbourne Hospital. He tendered his congratulations to Dr. Kellaway on the very able manner in which he had discussed a subject of very wide scope and of great difficulty and proposed to confine his own remarks to recent advances in conception and treatment of thyreoid disorders.

On his recent trip abroad he had been afforded the privilege of studying the work of Dr. H. S. Plummer, of the Mayo Clinic, and his associate, Dr. W. M. Boothby. Unparalleled opportunities for the study of the goitre problem existed in Rochester, where as many as five hundred patients were operated upon for the relief of exophthalmic goitre in the course of twelve months.

During the four weeks he spent in Rochester he had seen examples of all kinds of goitre. He had been astounded at the accuracy of diagnosis and had realized that the statistics relating to the operative treatment of exophthalmic goitre collected in Melbourne—he was referring with all respect to the work of Dr. T. P. Dunhill—needed revision from the standpoint of diagnosis. Many of the patients included in that series had not been subjects of true exophthalmic goitre as now defined by Plummer, but were properly to be regarded as affected with adenoma of the thyreoid and hyperthyreoidism.

The symptom complex associated with adenoma of the thyreoid and hyperthyreoidism differed from that of exophthalmic goître and was more amenable to surgical treatment.

All the symptoms of hyperthyreoidism such as was associated with an adenoma of the gland could be reproduced by feeding animals and human beings with large doses of thyreoid extract. The basal metabolic rate was raised and in train the increase in pulse rate, warmness and clamminess of the hands and cardiac embarrassment and even failure were to be observed. The symptoms were in effect those produced by continued heavy exercise. Such experimental hyperthyreoidism, however, and likewise that of toxic thyreoid adenoma did not lead to exophthalmos or the psychic changes which distinguished exophthalmic goître, irritability, irresponsibility, loss of judgement and even acute delirium.

The isolation of thyroxin by Kendall had enabled Plummer to suggest wherein the difference between simple hyperthyreoidism and exophthalmic goître might lie. In the formula representing the benzol grouping in thyroxin three arms were saturated with iodine, and it was suggested that in exophthalmic goître there was a perversion of the secretion of the thyreoid in that its thyroxin was not properly saturated with iodine. The dysthyreoidism resulted in toxic effects such as were not produced by excess of normal secretion.

The fact that the very worst examples of exophthalmic goître came from districts particularly poor in iodine, notably the Mississippi valley, supported this argument. Deficiency of iodine in the thyreoid secretion rendered it a toxic product.

Colloid goître associated with iodine deficiency could be controlled over long periods by the administration of iodine or iodides.

The argument seemed to be clinched by the results following modification of treatment in the direction of supplying iodine. In March, 1922, it had been determined that every patient affected with exophthalmic goître entering the Mayo Clinic was to receive intensive iodine treatment. By the administration of Lugol's solution— a 5% solution of iodine in a 10% solution of potassium iodide— the patient very quickly became saturated with iodine. All those affected with true exophthalmic goître improved remarkably within ten days, the degree and progress of their improvement being assessed by daily estimations of the basal metabolic rate. In short the pathological state was transformed from one of exophthalmic goître to simple hyperthyreoidism.

The thyreoid having once gone wrong, however, it was not deemed advisable to discharge these patients without removal of a portion of the gland and a notable result of the preoperative iodine treatment was that the surgical death rate was reduced from 5% to less than 1%. In the first five hundred thus managed there had been only one death following operation and in this instance operation had been undertaken at once because it was understood that the patient had been receiving iodine therapy from his own physician. It had been discovered later that the administration of iodine had been discontinued one month prior to the patient's journey to Rochester.

It was essential to insure the correct diagnosis of exophthalmic goître before the institution of iodine treatment; it was not applicable to adenoma and hyperthyreoidism. Nevertheless such treatment should always be instituted in cases of true Graves's disease associated with adenomata, since the beneficial effects of the treatment on the general hypertrophic condition of the gland far outweighed the risk of starting hypersecretion in the associated adenomata.

The X-ray treatment of exophthalmic goître had been given a fair trial in America and had been discontinued as unsatisfactory.

Continuing, Dr. Sewell emphasized the fact that in toxic adenoma the adenoma itself was responsible for the hypersecretion and that such excess was not due to irritation of the remainder of the gland by the presence of the tumour. It had been demonstrated in the subjects of toxic adenoma that the basal metabolic rate fell from + 40 or + 50 or even + 70 to normal within three weeks after the removal of the tumour. This corresponded with the time required for the basal metabolism in myxœdema to rise from a *minus* to a *plus* quantity and return to *minus* after the injection of 0.005 gramme (one-twelfth of a grain) of thyroxin intravenously.

It must be clearly understood that the theories of Plummer did not for a moment conflict with the view that in both colloid goître and exophthalmic goître a septic focus might pull the trigger and start hypersecretion of the gland. It was presumed that the activities of the infecting agent led to either a lack of iodine absorption or an increased consumption of iodine. The results of such infective conditions would of necessity be noticed to the greatest extent in iodine poor districts; hence the prevalence of these types of goître in such areas. It was scarcely necessary to emphasize, therefore, that the first step in the treatment of these conditions was to attack any infective focus present.

Dr. Sewell related some instances of the dramatic therapeutic results obtained with thyroxin. One patient, a High Court judge, furnished a typical example of myxœdema in intellect, facial appearance and other respects. He had been incapable of work for many months. Within three days of a single dose of thyroxin he had become mentally bright and full of wit. He had been given no further thyroxin for three weeks after the initial dose.

It might be asked why it was not sufficient to administer thyroxin by the mouth. The intravenous medication was much to be preferred as in the sluggish metabolism of hypothyreoidism no reliance could be placed on its complete absorption when thyroxin was given by mouth. One intravenous injection of 0.005 gramme (one-twelfth of a grain) every three or four weeks was all that was necessary.

Another patient had presented the typical Derbyshire neck produced by a large colloid goître. His basal metabolic rate had been much depressed. When seen three days after a single injection of thyroxin this man had been scarcely recognizable; his neck had receded to an almost incredible degree and within five days it had returned to normal size. Once the size of such a thyreoid was reduced, it could be easily kept down by the administration of small doses of iodine.

In some remarks on suprarenal disease Dr. Sewell pointed out that whereas one dose of the active principle of the thyreoid sustained metabolism for three to five weeks, the effect of a single dose of adrenalin was exhausted in five minutes. How then were results achieved by adrenalin to be comparable in any way with those of thyroxin? Adrenalin was not the same potent catalyte on all cell activity as thyroxin.

During his stay at Rochester he had seen nine patients with Addison's disease, but on the whole no great progress had been made with them. Adrenalin had been given orally, subcutaneously and by the bowel. One patient received a dose by one or other route every two hours while awake and another who was extremely ill, improved considerably after ten days of this *régime*. The transient effect of adrenalin constituted the difficulty in treatment even when it was used in this manner. How striking was the contrast with thyroxin of which a single intravenous dose was effective for at least three weeks. Recourse had also been taken to the administration of whole gland by the mouth combined with extract of the medullary chromaffine subcutaneously and by the bowel. The drug "Ephredin" was also being employed; this had a considerable pressor effect, but unfortunately the rise in blood pressure was almost as transient as that produced by adrenalin itself.

Dr. Kellaway expressed his thanks to Professor Osborne and Dr. Sewell for their exceedingly kind remarks. He was deeply sensible of the honour done the Walter and Eliza Hall Institute by the action of the Scientific Sub-Committee of the Council in asking him to deliver the inaugural lecture in the new building.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Royal Prince Alfred Hospital, Camperdown, on May 14, 1925, DR. R. J. MILLARD, C.M.G., C.B.E., the Vice-President, in the chair.

Cutaneous Cholesterol Deposits.

DR. A. H. TEBBUTT, D.S.O., and DR. F. S. HANSMAN showed a patient who was suffering from cutaneous cholesterol deposits and Dr. Tebbutt read a report of his condition (see page 110).

DR. GRANT LINDEMAN said that the main point in regard to *xanthoma tuberosum multiplex* was that no ætiological factor had been found to account for the condition. Sometimes there was a familial trait. Pollitzer had reported three cases in one family with no definite findings on blood examination. It was commonly held that the condition represented an irritative connective tissue hyperplasia and that the necessary stimulant was provided by the cholesterin fatty acids. The absence of xanthoma bodies could be explained. The fatty acids caused proliferation of cells in the tissues, polymorpho-nuclear leucocytes and small round cells and changed the picture by ousting the xanthoma cells. There was another condition which modified the picture in the case reported by Dr. Tebbutt. Dr. Tebbutt had found fibrous degeneration. The nodule had been taken from the knuckle of the patient; this was a very exposed part. Dr. Lindeman thought that if a nodule from some less exposed area of skin were examined the xanthoma cells would be found. Three similar conditions existed. *Xanthoma palpebrarum* occurred on the eyelids and consisted of small plaque-like crusts. The second condition was *xanthoma tuberosum multiplex* and the third was *xanthoma diabeticorum*. In the last-named condition the onset was quick and the hard crusted patches characteristic of the disease disappeared when the patient's general condition was treated. The treatment of xanthoma nodules was not very satisfactory. The actual cautery, phosphoric acid in cod liver oil and turpentine were used and treatment by carbon dioxide snow was often effective. Another rare condition was *pseudoxanthoma elasticum* and in this much elastic tissue was found.

Arthrodesis of the Hip.

DR. L. G. TEECE showed two patients, a man and a woman, aged respectively sixty-three and sixty, to demonstrate the result of arthrodesis of the hip. Both patients had suffered from osteo-arthritis and had presented a typical picture with the thigh flexed and adducted and with apparent shortening. Both had complained of continuous pain. These patients showed that they could walk quite well. Dr. Teece said that arthrodesis of the hip was either a complete success or a complete failure. For the production of a good result the patient should be of the spare or thin type. He had seen one failure in a fat patient. If a satisfactory ankylosis were not produced the deformity and the symptom returned. It was his custom to immobilize patients for a period of eight weeks. The only disability resulting from the operation was that the patient's leg would stick out when he sat down and cause great inconvenience if he were travelling in a tram or omnibus.

DR. H. L. KESTEVEN asked Dr. Teece whether the disability which he had mentioned, could not be partially overcome by securing a certain amount of flexing while fixing the hip joint.

Dr. Teece in reply said that he quite agreed with Dr. Kesteven. The difficulty in arthrodesis of the hip was to avoid getting too much flexion. Flexion of 15° was probably the ideal result. If flexion of, for example, 25° was obtained it would be quite likely that the ankylosis would be unsatisfactory. For this reason he always strove to obtain full extension, knowing that the result would fall short of this.

Arthrodesis of the Shoulder Joint.

Dr. Teece also showed a boy, aged fourteen years, who had suffered from infantile paralysis. The deltoid, supraspinatus and the infraspinatus had been completely paralysed and a flail should have resulted. In regard to the most suitable age for arthrodesis of the shoulder Dr. Teece said that Jones recommended eight years of age. Other authorities gave later ages. This boy had been thirteen years of age at the time of operation. In operations of this kind on the shoulder it was his practice to immobilize the shoulder for eight weeks. Dr. Teece showed that the patient had good movement and could abduct the arm through nearly 90°.

Plastic Operation on the Foot.

Dr. Teece's third patient was a boy on whose foot he had performed a plastic operation. The patient had suffered from a severe burn of the dorsum of the foot. The tendons had been destroyed. The resulting contracture had produced a calcaneo-valgus position. All attempts to stretch the scar tissue had been useless and had demonstrated to him that this procedure was always unavailing. He had then made a pedicle skin graft from the other leg and had put the child in plaster. Unfortunately soon afterwards the patient had suffered from scarlet fever. He had been transferred to the Coast Hospital. The medical staff at this institution had very kindly continued the treatment and had divided the pedicle when this was necessary. The end result was highly satisfactory.

Encephalitis Lethargica.

DR. M. C. LIDWILL showed a young man who was the subject of Parkinsonian symptoms following *encephalitis lethargica*; the point of interest in the patient's history was the long onset. Six years previously the patient had suffered from "influenza." For two months he had been moderately well, but then had become drowsy. He had been able to do his work for two years, but had always been drowsy and had been in the habit of going to sleep when he was coming home on the tram. This state of affairs had persisted for twelve months and then the so-called Parkinsonian symptoms had arisen. Dr. Lidwill pointed out that the patient stood in the characteristic attitude. Rigidity was present, but no tremor was noticed, except in the face. The head was held stiffly. The patient's mental condition was fair. The Parkinsonian symptoms had not progressed for two years. One pupil was larger than the other and the reflexes were normal.

Dr. Lidwill also referred to a woman, aged twenty-eight years, who had been well until three years previously. This patient had slight Parkinsonian symptoms in the face. The primary instincts had almost disappeared. According to the Binet-Semon tests, however, her mental age was seventeen years and she was very quick at mathematical calculations and her intelligence was normal.

Myxo-Fibro-Endothelioma.

MR. H. R. G. POATE showed a female patient, aged thirty-six years, from whose neck he had removed an unusual tumour. The patient had been admitted to hospital on April 29, 1925, with a swelling in the left side of the neck which had been present for two years. She had suffered from mumps eighteen years previously and the swelling on the left side had not entirely disappeared. Later on the patient had suffered from a sore throat and had noticed a lump on the roof of the mouth. In 1916 the late Sir Herbert Maitland had removed something from the neck. Mr. Poate said that the pathological report after the operation in 1916 was to the effect that the cyst wall and the contents of the cyst were fibro-sarcoma. At this operation an incision had been made over a swelling in the parotid region and a cyst had been found communicating with the swelling in the pharynx. The contents had been scraped out and the cavity packed with gauze. The gauze had been gradually removed and the swelling in the pharynx had subsided. The wound had healed before discharge of the patient from hospital. Mr. Poate said that he had removed a small gland from the neck three weeks previously. A report after microscopical examination had been to the effect that the gland was the seat of a metastasis; its histological features were those of a mixed tumour, myxo-fibro-endothelioma. It resembled a tumour found in parotid rests or aberrant salivary gland tissue. There was considerable doubt, however, as to its

histogenesis. Professor Welsh had expressed the opinion that it was definitely malignant.

The swelling below and behind the ear on the left side had been hard, firm and adherent to the surrounding tissue. Old scars had been present in the neck and in the mouth. The soft palate had been lobulated and the uvula had deviated to the right side. The soft palate had looked as though three cherries were situated beneath the mucous membrane on the left side.

On May 5, 1925, Mr. Poate had operated through an elliptical incision over the anterior margin of the left sternomastoid, the upper half of that muscle together with the substernomastoid chain of lymphatic glands had been excised. An unusual amount of oozing occurred and this had been controlled by ligating the external carotid artery. The fascia and glands having been removed, the tumour had been found to occupy the subcarotid region and had extended to just beneath the mucous membrane of the soft palate and the tonsils. The tumour which was a lobulated mass like a bunch of cherries, had been freed from its attachments. In one place, however, it had appeared to be connected with the parotid gland by a stalk and this had been cut through as high as possible. All bleeding points having been secured, the wound had been drained by a piece of rubber tissue anterior to the incision and closed. The patient had been returned to the ward in good condition. No operative procedure had been carried out in the mouth as the mucous membrane was intact.

Dr. Keith Inglis said that he had not made a careful examination of the specimen. It seemed at first sight to be composed of nodular masses which were not quite round. He asked whether the metastases could not have been detached portions of the main growth. The tumour was not composed of squamous epithelium and he wondered whether it was allied to the group of salivary gland tumours. If the tumour was of this nature the case was interesting in view of the long history and metastases in lymphatic glands would not be expected. He asked whether lymph glandular tissue had been recognized in sections of the metastases.

Mr. Poate in reply said that the gland which he removed had been quite discrete and superficial and had definitely resembled a lymphatic gland.

Dr. Tebbutt confirmed Mr. Poate's opinion that the metastatic tumour had consisted of a lymphatic gland.

Arthroplasty of the Hip.

Mr. Poate's second patient was a man, aged twenty-five years, who had been subjected to double arthroplasty of the hip. The patient had been admitted to hospital on November 24, 1923, complaining of stiffness of both hips and neck and of "rheumatoid arthritis" of three years' duration. The patient had also suffered from recurrent attacks of swelling and pain in the knees for four years. The hips had become very painful, especially when the patient had assumed the sitting position. Movements at the hips had gradually been lost and on admission to hospital no movement in any direction had been possible. Two years before admission the patient had complained of pains in the neck and of gradually increasing stiffness. This had progressed until he was unable to move the neck in any direction. The patient had not suffered from rheumatic fever nor from sore throats and had not complained of "growing pains."

On December 4, 1923, arthroplasty of the left hip had been performed and on February 10, 1924, the patient had been able to walk. Adduction, abduction and extension at the left hip joint had been normal.

On March 17, 1925, the patient had been readmitted for treatment of the right hip. On March 19, 1925, arthroplasty of this joint had been performed. At the time of demonstration movement at the right hip joint was good and the patient was able to walk with crutches.

Tumour of the Large Intestine.

Mr. Poate also showed a tumour which he had removed from a patient, aged thirty years. The patient had complained of soreness in the right side of the abdomen. The soreness had been worse when the patient was constipated and a feeling of tightness had been present after walking. He had also complained of a lump in the right side. Symptoms had been present since the year 1919. The patient had complained of pain at the back of the right shoulder, of flatulence and fullness in the epigastrium just before meals or when he was in a cramped position, for example, when riding or driving. The patient's bowels had inclined to be constipated, more of late than a couple of years previously. No vomiting had occurred, but about a year previously the patient had complained of dry retching. During the previous nine months the abdominal symptoms had got worse. In 1919 the patient had weighed 72.9 kilograms (eleven stone eight pounds) and at the time of demonstration he weighed 64.8 kilograms (ten stone four pounds). Most of this weight had been lost in the previous twelve months. The patient had been blown up at Messines in June, 1917. In July of that year he had been operated on in England and a cystic retroperitoneal tumour had been removed from the right loin. The kidney had been normal. X-ray examination after admission had revealed no abnormality in the renal area. An opaque meal examination had revealed a constant deformity of the duodenal cap with a reflex transient incisura of the fundus of the stomach. The appearance had suggested the presence of chronic duodenal ulcer.

On May 7, 1925, a right paramedial incision had been made and a chronic ulcer had been found on the anterior wall of the first part of the duodenum. A large mass had been felt in the ascending colon; it had resembled the apex of a chronic intussusception at the hepatic flexure. Further examination had revealed a huge dilatation of the caecum and the ascending colon which was easily delivered through the wound. The mass had been resected from the terminal portion of the ileum to just beyond the hepatic flexure. The ends of the bowel had been closed and a lateral anastomosis performed between the ileum and the transverse colon. The raw areas had easily been oversewn. Posterior gastro-enterostomy had been performed. The patient had made an uninterrupted recovery.

Mr. Poate said that a complete pathological examination of the specimen had not been carried out, but naked-eye examination revealed large polypoid masses projecting into the lumen of the colon and apparently lying between the mucosa and the muscular coat. The exact nature of the tumour could not be stated and the enlarged glands were affected only by a simple adenitis. A complete report would be made at a later date.

Lipo-Dystrophy.

Dr. A. J. Collins, D.S.O., M.C., showed a patient who was suffering from lipo-dystrophy and diabetes. This case will be reported in full at a later date.

Lumbar Rib.

Dr. St. J. W. Dansey reported the history of a male patient, a gardener, who had complained for two years of pain of a dull aching character high up in the lumbar region on the left side. On bending the body or on coughing he had complained of pain "like a red hot poker on the back." The pain had been worse when the patient lay in bed and easier when he walked about in an erect attitude. He had been treated for two years for lumbago without success. There was no history of venereal disease On examination resistance and tenderness had been present on the left side in the lumbar region running laterally from the first lumbar spine. Bending of the trunk to the left side had produced a sharp pain in that region. X-ray examination had revealed the presence of six lumbar vertebræ the first of which had a rib on the left side.

Dr. Dansey had excised the rib together with the periosteum. He showed it to those present. The wound had healed readily and very soon the patient had been able to lie comfortably in bed for the first time in two years. Before leaving hospital he had been able to bend his trunk in all directions without any discomfort. Dr. Dansey said that no doubt the pain had been caused by the lumbar rib which was on a deeper plane than the last thoracic rib

above. It had been pushed up beneath the thoracic rib on movements of the spinal column and the constant bruising had produced a subacute periostitis of the accessory rib. The case also demonstrated the necessity for X-ray examination of the vertebral column and kidney region of every patient who complained of persistent pain in the loin.

Urethral Hernia of the Bladder.

Dr. Dansey also read the history of a female patient who suffered from urethral hernia of the bladder. This report will be published in a subsequent issue.

Removal of Foreign Body from a Bronchus.

Dr. Garnet Halloran showed part of a tracheotomy tube which had been removed from the right bronchus of a patient, aged sixty-five years. The tube had been worn constantly by the patient and had become separated from the flange. Dr. Halloran described the technique adopted in the removal of the foreign body and laid stress on the necessity for frequent examination of tracheotomy tubes which were worn permanently.

Pyelography.

Mr. Gordon Craig referred to the growing advantage in diagnosis of lesions of the urinary system of rendering the tract opaque by the injection of solutions which were impervious to X-rays. The practise of urography had been introduced in 1911 and had been accepted with enthusiasm. Nephritis and death had frequently occurred. It had been the privilege of an Australian graduate to show why this occurred. Lee Brown had demonstrated that with no amount of pressure could a reflux be obtained through the renal tubules. The avenue of communication was the venous system. It had thus been shown that any solution used to render the urinary tract opaque must be capable of venous injection. Mr. Craig then demonstrated an instructive series of pyelograms. He described the method of injection and demonstrated several diagnostic points of interest.

Skiagrams.

Dr. H. R. Sear demonstrated a series of interesting skiagrams.

Diphtheroid Bacillus from the Lung Cavity.

Dr. V. R. Woodhill demonstrated under the microscope several specimens of diphtheroid bacilli. He said that the occurrence of organisms morphologically indistinguishable from the Klebs-Löffler bacillus had been noted in the sputa of three patients in a routine examination for tubercle bacilli. These organisms had been present in enormous numbers with only very few of any other variety. Two of the patients were suffering from *diabetes mellitus* and they had been affected by a respiratory infection during the course of the disease.

When the bacilli were found in the first case their occurrence was regarded as suspicious enough to cause the administration of diphtheria antitoxin. This had been given without any curative effect. Later the condition had been recognized clinically as gangrene of the lung and at this stage the organism had practically disappeared from the sputum, to be replaced by a very varied profusion of Gram negative and Gram positive cocci and bacilli. At autopsy the clinical diagnosis had been confirmed. The second case had followed a similar course as the first. Similar organisms had been found in the sputum of a patient who developed cough and expectoration after an operation for subphrenic abscess. He had died before a second specimen of sputum could be obtained and no autopsy had been allowed.

The organism in the first two cases appeared almost as a pure culture and morphologically could not be distinguished from the Klebs-Löffler bacillus. However, no growth could be obtained on blood serum or ordinary media and no success met the efforts to grow it under strictly anaerobic conditions. Guinea pigs were not susceptible to the organism. It was presumed to be a diphtheroid anaerobe. The remarkable appearance of the sputum and the presence of the organism in the early stages of definitely proven cases of gangrene of the lung suggested that it might play some part in the causation of the latter condition.

MEDICO-POLITICAL.

The Council of the Victorian Branch of the British Medical Association recently received a letter from a member in which he asked whether he was obliged to accede to a request from the Repatriation Department for his clinical notes relating to an ex-soldier under his care as a private patient. He had declined to give the information in the absence of a written request from the patient. The Council supported the member in his action. Representations were made to the Department to the effect that medical practitioners should not be asked to supply clinical notes unless the patient concerned gave his written consent.

A letter has been received from the Repatriation Department informing the Council that before information concerning the illness of a patient was sought from private practitioners, the verbal consent of the patient was always obtained. In many instances the information was sought at the patient's own request. The Department undertook in future to obtain the written consent of the patient and thanked the Council for having drawn their attention to this matter.

SOCIAL ENTERTAINMENT.

The second annual smoke social gathering at which new graduates were entertained by the Victorian Branch of the British Medical Association was held at the Mia Mia Café on May 7, 1925. Dr. J. Newman Morris, Chairman of Committees of the Council presided and tendered an apology for the President, Dr. S. S. Argyle, M.L.A., who was unable to attend on account of indisposition.

Apologies were also received from the Vice-Presidents, Dr. H. Douglas Stephens and Dr. R. J. Bull.

Opportunity was taken to invite Professor Peter MacCallum, Professor of Pathology in the University of Melbourne, and Professor Wilkinson, who has taken up his duties in the newly created Chair of Dental Science and to extend to them a welcome to Melbourne on behalf of the Victorian Branch.

Dr. J. Newman Morris, in the course of a brief address, said that the meeting though informal was none the less a meeting of the Victorian Branch of the British Medical Association and it was fitting that they should proffer a cordial welcome to Professors MacCallum and Wilkinson. Members of the medical profession in Melbourne keenly appreciated the work already initiated by Professor MacCallum in the form of weekly afternoon demonstrations of *post mortem* and general pathological work, so arranged that men in busy practice might have opportunity to attend and benefit by them. Professor Wilkinson was a medical man and in his position in the dental world would do much to bring about cooperation between the medical and dental professions.

Dr. Morris said that he could not do better than remind them of some of the aims and objects of the British Medical Association; these, if kept in view, made for a very worthy profession and a high standard of practice. Foremost among the objectives of the British Medical Association was the promotion of the medical and allied sciences; it was not to be forgotten that this was the association's primary activity and he hoped that they would not fall into the error of regarding it as entirely a political body.

The British Medical Association existed also for the maintenance of the honour and interests of the medical profession, the formation of a bond of union between medical men and the provision of a medium for the interchange of opinions. The British Medical Association never relaxed in its efforts to promote fair and honourable practice and to maintain harmony between neighbouring medical men. He wanted them to realize that the Council of the Victorian Branch was ready at all times to help with the advice that men of experience could give, and he hoped that they would not fail to avail themselves of

the assistance of the Council in all their professional difficulties.

The qualities essential for a high standard of practice, however, could be developed only by themselves; they must all endeavour to cultivate thoroughness in their work, honesty, frankness and sympathy with their patients. Medicine was a hard mistress and unceasing effort was necessary to serve her faithfully.

Dr. Morris quoted extracts appropriate to the occasion from a lecture by Sir James Paget on the responsibilities of practice and in conclusion assured the recently qualified medical men of a hearty welcome into the profession on the part of the Victorian Branch of the British Medical Association.

Dr. A. V. M. Anderson, in the course of remarks which embraced a number of humourous anecdotes, said that it was important for men starting in practice to gain an appreciation of what the patient required of a medical man.

Promptness in responding to calls and punctuality in keeping appointments were important requisites for success in practice. Present day patients were often very enlightened and the old *régime* of the prescription of a bottle of medicine had passed away. They would find that their patients demanded information as to the nature and precise cause of their troubles, the object of treatment, especially if operative, and prognosis. He advised them to be frank and not to dissimulate if it could be avoided and in a general way not to be too gloomy in prognosis. He regarded it as a wise practice always to have some member of the patient's family in the doctor's confidence.

He urged them never to fail to seek the advice of a senior practitioner when occasion for anxiety arose and considered that it was inadvisable for a recently qualified practitioner to attempt to do everything that came his way.

He hoped that they would not be in too great a hurry to settle in practice, but would seek further training and post-graduate study. It was unfortunate that all graduates could not receive resident appointments at hospitals; for those who could not secure them and were unable to travel, an assistantship with an experienced practitioner afforded excellent opportunities for gaining knowledge.

They would be well advised to cultivate social relations with their fellow practitioners; friction and misunderstanding between medical men would be much diminished if doctors would make efforts to know each other better.

As Dr. Morris had said, the Council of the Victorian Branch was very anxious to answer all questions relating to medical ethics and difficulties of practice.

Dr. R. H. Fetherston said that it gave him great pleasure to congratulate the successful candidates at the recent final examinations and to welcome them into the fellowship of the medical profession and the British Medical Association. He thought it might be of interest if he sketched the history of medical organization in Victoria.

From the very earliest days there had been a medical society. The first meeting was held in 1845 or thereabouts. Towards the end of the 'fifties or early in the 'sixties the Medical Society of Victoria was founded. This remained a virile body until its amalgamation with the Victorian Branch of the British Medical Association in 1902. The charter for the foundation of a Branch of the British Medical Association was brought from London by Dr. Louis Henry about the year 1890.

At the present time to be outside the British Medical Association was to be outside the profession; a non-member of that fellowship which conferred a passport to the best medical society the world over. He urged them all to lose no time in identifying themselves with the British Medical Association.

Professor Peter MacCallum expressed his appreciation of the courtesy extended him by the Victorian Branch of the British Medical Association. He was impressed by the efficient organization of the association in Victoria and by the fact that its membership embraced over 90% of practising members of the medical profession. He hoped that medical men would not forget their association with the University and he was endeavouring to keep in touch with medical graduates by providing weekly demonstrations in pathology for men in practice. The facilities for study in the University Pathological Museum were also at their disposal. On every hand he had received a most cordial welcome since his arrival in Australia.

Professor Wilkinson said that he felt privileged to represent the dental profession at such a gathering. It was his great desire to establish a cooperation between the medical and dental professions as indicated by Dr. Morris. Dentistry was perhaps the specialty concerning which medical graduates knew least and by working in harmony doctor and dentist could learn much from each other. He counted it an honour to have been invited to be present.

Dr. Dawes, as late chairman of the Committee of the Medical Students' Society, expressed the thanks of the new graduates for their entertainment by the Victorian Branch of the British Medical Association. They had fully enjoyed the function and thoroughly appreciated the advantages to be gained by becoming members of the British Medical Association.

A pleasant musical and other programme was provided.

NOMINATIONS AND ELECTIONS.

The undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Abbey-Wiesener, Frederick, M.B., Ch.M., 1923 (Univ. Sydney), 227, Macquarie Street, Sydney.

Jobbins, Leslie Thomas, M.B., Ch.M., 1924 (Univ. Sydney), Pomona, Queensland.

Shipton, Eva Adeline, M.B., 1925 (Univ. Sydney), Parkes Street, Guildford.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Currie, Leslie Thomas, M.B., Ch.M., 1923 (Univ. Sydney), Fairfield.

Grant, Jean Elma, M.B., B.S., 1925 (Univ. Melbourne), Windsor.

McLeod, Ann, M.B., B.S., 1925 (Univ. Melbourne), Queen Victoria Hospital, Melbourne.

Medical Societies.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A meeting of the Medical Sciences Club of South Australia was held at the University of Adelaide on April 3, 1925.

Postanæsthetic Acidosis.

Dr. A. R. Southwood presented a brief account of some work he had done in connexion with postanæsthetic acidosis. In a carefully observed series of one hundred and twenty-five subjects it had been found that eight-three showed ketonuria after operation. In some cases the condition had lasted six days; in the majority it had disappeared in three days. Females of child-bearing age and children almost invariably manifested the condition. Only 40% of adult males were affected by it. People of

nervous temperament were predisposed. The nature and duration of the operation and the anæsthetic used were immaterial.

Among sixteen persons in whom the alkali reserve of the blood was estimated before and after the operation, ten had manifested a definite fall. Recent work by Minett, of Liverpool, had shown that anæsthesia induced a rise of blood sugar varying with the duration of anæsthesia and that sugar tolerance tests before and after operation showed the pancreas to be temporarily impaired. Patients who developed toxic symptoms after anæsthesia, showed a further secondary rise of blood sugar. The administration of "Insulin" to these reduced the hyperglycæmia and led to speedy recovery. Administration of "Insulin" at the end of anæsthesia could mitigate or prevent toxic symptoms.

Dr. Southwood said that he considered that there were two distinct types of postoperative acidosis, either or both of which might arise in any individual case. The first was ketosis from temporary impairment of pancreatic function and was not necessarily accompanied by a fall of alkali reserve. The second was a different type of acidosis corresponding to that associated with wound shock and accompanied by a fall of alkali reserve. The second type depended on duration and severity of the operation; the first on sex, age and constitution or temperament of the subject.

Dr. Gilbert Brown supplemented Dr. Southwood's remarks and said that for many years it had been usual to administer glucose before operation, but he considered with little success. The evident rise in blood sugar during anæsthesia made the reason for this quite clear.

Dr. Brown detailed the histories of three patients who suffered from postanæsthetic acidosis. Two of them were children and they had died. The third, an adult, had recovered after intravenous injection of a solution of glucose and sodium bicarbonate. Since 1911 he had always given glucose before operation. Though this did not prevent ketosis there appeared to be less postoperative vomiting.

Piper in 1913 had advocated pancreatin before and after operation and had stated that ketosis was prevented.

The urine should always be examined for acetone and diacetic acid before any anæsthetic was given and, if it was found, operation should be delayed until the urine became normal. Thalhimer, Farrar, Fisher, Snell and others considered that the treatment should be a combination of "Insulin" and an intravenous injection of glucose.

Nitrous oxide and oxygen anæsthesia was free from the risk of postanæsthetic acidosis.

"Insulin."

Mr. R. H. Marston discussed certain aspects of the present knowledge of the antidiabetic hormone, "Insulin." He pointed out the fact that the poor yields of "Insulin" obtained from the pancreas by the use of the older methods was due to an inactivation of the "Insulin" by trypsin. This was not due to actual destruction of the "Insulin" by the proteolytic enzyme, but was due, as recently shown by Epstein and Rosenthal, to actual compound formation. The "Insulin"-trypsin compound was formed at once in slightly alkaline solution with complete inactivation of the "Insulin." The full activity could be regained, however, after the solution had stood for many hours in the presence of the enzyme, by adjusting the hydrogen ion concentration to 4.7 where the "Insulin" was set free.

Pepsin also formed a similar compound with the difference that the pepsin-"Insulin" compound was formed in acid solutions whose hydrogen ion concentration was 2.0, and broken up in alkaline solutions.

The compounds had been separated and partially purified. Epstein had pointed out the analogy between the action of the proteolytic enzymes on "Insulin," with the action of these enzymes on the azine and azonine bases, as described by Marston. He (Epstein) suggested the possibility of the occurrence of an azine ring formation in "Insulin."

The fact that "Insulin" was easily inactivated by the proteolytic enzymes cleared up the varying reports which had occurred in the literature from time to time in regard to the distribution of "Insulin" and which had culminated in a paper by Oersted in *The Lancet*. In this Oersted had thrown doubt on the occurrence of islet tissue in the pancreas. However, in the *Teleostei* the separated existence of what were typically the externally and internally secreting portions of the gland from a histological viewpoint, and the high conservation of "Insulin" in the typical islet tissues and the absence of it in the externally secreting portion rendered Oersted's objection invalid. The fact that "Insulin" was first discovered in glands in which the acini had been caused to degenerate by ligating the ducts, substantiated the view that the islet tissue as described by Langerhans existed as a separate functional unit in the pancreas.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

The second session of the Australasian Medical Congress (British Medical Association) will be held in Dunedin, New Zealand, from February 2 to February 9, 1927. The session will be in the new Medical School at present under construction. His Excellency, General Sir Charles Fergusson, Baronet, G.C.M.G., K.C.B., D.S.O., M.V.O., LL.D., Governor-General of New Zealand, will open the session.

The President of Congress is Professor L. E. Barnett, C.M.G., of the University of Otago; the Honorary Treasurer is Dr. D. W. Carmalt Jones; the Honorary General Secretary is Professor W. P. Gowland and the Honorary Associate Secretary is Dr. A. M. Drennam.

The Sections.

The scientific proceedings of Congress will be conducted in twelve sections. The following have been invited to fill the positions of presidents and vice-presidents of the several sections:

Section I.—Medicine.

President:
Professor A. E. Mills (New South Wales).

Vice-Presidents:
Dr. L. S. Latham (Victoria).
Dr. D. Gifford Croll, C.B.E. (Queensland).
Dr. C. T. C. de Crespigny (South Australia).
Dr. R. C. Merryweather (Western Australia).
Dr. E. W. Gieson (Wellington, New Zealand).

Section II.—Surgery.

President:
Dr. B. Kilvington (Victoria).

Vice-Presidents:
Professor F. P. Sandes (New South Wales).
Dr. F. A. Hadley (Western Australia).
Dr. E. Sandford Jackson (Queensland).
Dr. A. M. Cudmore (South Australia).
Dr. H. T. Dyke Acland (Canterbury, New Zealand).

Section III.—Obstetrics and Gynæcology.

President:
Dr. J. W. Dunbar Hooper (Victoria).

Vice-Presidents:
Professor J. C. Windeyer (New South Wales).
Dr. D. P. Clement (Western Australia).
Dr. W. A. Verco (South Australia).
Dr. R. Marshall Allan, M.C. (Queensland).
Professor Henry Jellett (Canterbury, New Zealand).

Section IV.—Pathology and Bacteriology.

President:
Dr. C. H. Mollison (Victoria).

Vice-Presidents:
Dr. J. V. J. Duhig (Queensland).
Dr. J. Dale, O.B.E. (Western Australia).
Dr. A. H. Tebbutt, D.S.O. (New South Wales).
Dr. A. B. Pearson (Canterbury, New Zealand).

Section V.—Preventive Medicine.

President:
Dr. Harvey Sutton, O.B.E. (New South Wales).

Vice-Presidents:
Dr. R. W. Cilento (Queensland).
Dr. R. C. E. Atkinson (Western Australia).
Dr. T. W. Sinclair (Victoria).

Section VI.—Ophthalmology.

President:
Dr. A. M. Morgan (South Australia).

Vice-Presidents:
Dr. C. Gordon MacLeod (New South Wales).
Dr. J. F. Rudall (Victoria).
Dr. J. Lockhart Gibson (Queensland).
Dr. D. D. Paton (Western Australia).
Dr. G. E. O. Fenwick (Auckland, New Zealand).

Section VII.—Otology, Rhinology and Laryngology.

President:
Dr. R. H. Pulleine (South Australia).

Vice-Presidents:
Dr. S. A. Ewing (Victoria).
Dr. W. C. Mansfield (New South Wales).
Dr. H. B. Gill (Western Australia).
Dr. W. N. Robertson, C.B.E. (Queensland).
Dr. James Hardie Neil (Auckland, New Zealand).

Section VIII.—Neurology.

President:
Sir John Macpherson, C.B. (New South Wales).

Vice-Presidents:
Dr. W. Ernest Jones (Victoria).
Professor J. P. Lowson (Queensland).
Dr. D. N. McWhae, C.M.G., C.B.E. (Western Australia).
Dr. Percy Chisholm (Canterbury, New Zealand).

Section IX.—Diseases of Children.

President:
Dr. A. Jefferis Turner (Queensland).

Vice-Presidents:
Dr. H. Douglas Stephens (Victoria).
Dr. J. Macdonald Gill (New South Wales).
Dr. R. H. Crisp (Western Australia).
Sir Truby King (Wellington, New Zealand).

Section X.—Naval and Military Medicine and Surgery.

President:
Dr. G. W. Barber, C.B., C.M.G., D.S.O. (Western Australia).

Vice-Presidents:
Dr. R. M. Downes, C.M.G. (Victoria).
Dr. J. S. Purdy, D.S.O. (New South Wales).
Dr. G. W. Macartney, D.S.O. (Queensland).
Sir Donald McGavin, C.M.G., D.S.O. (Wellington, New Zealand).

Section XI.—Orthopædics.

President:
Dr. N. D. Royle (New South Wales).

Vice-Presidents:
Dr. W. Kent Hughes (Victoria).
Dr. H. S. Newland, C.B.E., D.S.O. (South Australia).
Dr. A. Jewett (Western Australia).
Dr. A. V. Meehan (Queensland).
Dr. D. S. Wylie, C.M.G., C.B.E. (Wellington, New Zealand).

Section XII.—Radiology.

President:
Dr. S. S. Argyle, M.L.A. (Victoria).

Vice-Presidents:
Dr. H. R. Sear (New South Wales).
Dr. A. T. H. Nisbet (Queensland).
Dr. H. C. Nott (South Australia).
Dr. D. I. R. Smith (Western Australia).
Dr. Neil McDougall (Auckland, New Zealand).

The list of Honorary Secretaries will be published at a later date as will particulars concerning the sectional programmes.

Trade Exhibition.

A trade exhibition of books, instruments, drugs and the like will be organized and suitable arrangements will be made for the display of the exhibits. Firms desirous of participating in this exhibition should communicate with Professor W. P. Gowland, the Honorary General Secretary of the Australasian Medical Congress (British Medical Association), Dunedin, New Zealand.

Post-Graduate Work.

THE CLINICAL COURSE IN BRISBANE.

In The Medical Journal of Australia of May 16, 1925, page 524, we published the preliminary details of the clinical post-graduate course to be held in Brisbane, from August 3 to August 7, 1925. Members intending to join the course are requested to send in their names to Dr. R. Marshall Allan, Honorary Secretary of the Queensland Branch of the British Medical Association, without delay. The fee is one guinea.

Dr. Hume Turnbull will deliver a lecture entitled: "The Diagnosis of the Normal Heart and the Conditions of the Heart After Acute Diseases" at a meeting of the Queensland Branch at 8.15 p.m., on Friday, August 27, 1925.

Notices will be posted in the British Medical Association Building, Adelaide Street, Brisbane, and at the public hospitals, announcing the time when surgical operations will be performed at the several hospitals. The timetable of the clinical work has already been published.

On Thursday, August 6, 1925, the annual dinner of the Branch will be held at Lennon's Hotel. It is anticipated that the attendance will be large.

We are informed that railway concessions are subject to the applications from a specified minimum number of participants. It is doubtful whether a sufficient number of members will join the course to render it possible to claim the concession rates. It is pointed out, however, that members who have to travel a distance exceeding two hundred miles to Brisbane, will be able to avail themselves of the ordinary exhibition excursion rates. Exhibition tickets are issued for use from July 30 to August 12, 1925, at a reduction greater than that obtaining in regard to concession tickets.

Correspondence.

CHRONIC SINUSITIS.

Sir: In chronic sinusitis there is no retention of pus or mucopus under pressure. That is an initial and very serious error in Dr. Pern's contention. The two cases he showed me at Saint Vincent's I understood were cases of sinusitis he was going to treat.

Yours, etc.,

W. Kent Hughes.

22, Collins Street, Melbourne.
July 11, 1925.

Public Health.

ACUTE POLIOMYELITIS IN VICTORIA.

A short time ago the Health Committee of the Council of the City of Melbourne considered the best means of dealing with an increase in the incidence of poliomyelitis. Dr. Jean MacNamara was appointed to trace convalescents and former sufferers from the disease in order that supplies of human convalescent serum might be available should the epidemic progress. A conference was called on May 21, 1925, of the municipal medical officers of health. The steps that had been taken, received the approval of the members of the conference. A small committee was appointed to act as a medical advisory committee. Its members were Dr. W. J. Penfold (or his representative), Dr. C. H. Kellaway (or his representative), Dr. F. V. Scholes, Dr. Reginald Webster and Dr. Jean MacNamara. The last named was appointed convenor.

Arrangements have now been made to provide facilities for the early diagnosis of acute poliomyelitis by the examination of the cerebro-spinal fluid removed by lumbar puncture. An ample supply of convalescent serum is available for treatment of the disease in its early stages. Medical practitioners in charge of patients whose symptoms are suggestive of poliomyelitis, should apply to the medical officer of health of the district in which the patient resides, in order that he may be referred to the medical officer detailed for the work of assisting in the diagnosis by withdrawing cerebro-spinal fluid and examining it.

Obituary.

TIMOTHY JOSEPH PATRICK RYAN.

We much regret that we have to record the death as the result of a motor car accident of Dr. Timothy Joseph Patrick Ryan which took place at Lower Ferntree Gully, Victoria, on July 12, 1925.

CORRIGENDUM.

Sacral Anæsthesia.

Our attention has been drawn by Dr. L. J. J. Nye and Dr. C. L. Paine to an error in their paper published in our issue of July 11, 1925. The reference to ten cubic centimetres of adrenalin in anæsthetic solutions should be ten minims.

Medical Appointments.

Dr. David Ernest Williams (B.M.A.) has been appointed Medical Inspector of Seamen at the Port of Fremantle, Western Australia.

* * * *

Dr. W. E. L. Crowther (B.M.A.) has been appointed a Member of the Midwives' Registration Board, Tasmania.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi..

New South Wales Branch, Repatriation Commission: Assistant Departmental Medical Officer.

The University of Melbourne: Director of Obstetrical Research.

The University of Sydney: Physicist to the Cancer Research Committee.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
New South Wales: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellow's Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
South Australian: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

July 28.—New South Wales Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
July 30.—New South Wales Branch, B.M.A.: Branch.
July 30.—South Australian Branch, B.M.A.: Branch.
Aug. 4.—Tasmanian Branch, B.M.A.: Council.
Aug. 5.—Victorian Branch, B.M.A.: Branch.
Aug. 6.—Section of Orthopædics, New South Wales Branch, B.M.A..
Aug. 7.—Queensland Branch, B.M.A.: Branch.
Aug. 11.—Tasmanian Branch, B.M.A.: Branch.
Aug. 11.—New South Wales Branch, B.M.A.: Ethics Committee.
Aug. 13.—Victorian Branch, B.M.A.: Council.
Aug. 13.—South Australian Branch, B.M.A.: Council.
Aug. 13.—New South Wales Branch, B.M.A.: Clinical Meeting.
Aug. 14.—Western Australian Branch, B.M.A.: Council.
Aug. 14.—Queensland Branch, B.M.A.: Council.
Aug. 18.—Tasmanian Branch, B.M.A.: Council.
Aug. 18.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Aug. 18.—Illawarra Suburbs Medical Association, New South Wales.
Aug. 19.—Western Australian Branch, B.M.A.: Branch.
Aug. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.

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